6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA-HQ-OAR-2012-0510; FRL-9900-94-OAR]

RIN 2060-AR58

National Emissions Standards for Hazardous Air Pollutants Residual Risk and Technology Review for Flexible Polyurethane Foam Production

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The EPA is proposing amendments to the National Emissions Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production to address the results of the residual risk and technology review. In light of our review, we are proposing amendments that would prohibit the use of hazardous air pollutant-based auxiliary blowing agents for slabstock foam production facilities. In addition, the EPA is proposing amendments to correct and clarify regulatory provisions related to emissions during periods of startup, shutdown and malfunction; to add provisions for affirmative defense; to add requirements for reporting of performance testing through the Electronic Reporting Tool; to revise compliance dates for applicable proposed actions; to clarify the leak detection methods allowed for diisocyanate storage vessels

at slabstock foam production facilities; and to revise the rule to add a schedule for delay of leak repairs for valves and connectors.

DATES: Comments. Comments must be received on or before [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. A copy of comments on the information collection provisions should be submitted to the Office of Management and Budget (OMB) on or before [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

Public Hearing. If anyone contacts the EPA requesting a public hearing by [INSERT DATE 10 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], the public hearing will be held on November 20, 2013, from 10:00 a.m. to 4:00 p.m. on the EPA campus at 109 T.W. Alexander Drive in Research Triangle Park, North Carolina. If EPA holds a public hearing, the EPA will keep the record of the hearing open for 30 days after completion of the hearing to provide an opportunity for submission of rebuttal and supplementary information.

ADDRESSES: Submit your comments, identified by Docket ID Number EPA-HQ-OAR-2012-0510, by one of the following methods:

- http://www.regulations.gov: Follow the on-line instructions for submitting comments.
- Email: a-and-r-Docket@epa.gov, Attention Docket ID Number EPA-EPA-HQ-OAR-2012-0510.

- Fax: (202) 566-9744, Attention Docket ID Number EPA-HQ-OAR-2012-0510.
- Mail: U.S. Postal Service, send comments to: EPA Docket Center, EPA West (Air Docket), Attention Docket ID Number EPA-HQ-OAR-2012-0510, U.S. Environmental Protection Agency, Mailcode: 2822T, 1200 Pennsylvania Ave., NW, Washington, DC 20460. Please include a total of two copies. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget, Attn: Desk Officer for EPA, 725 17th Street, NW, Washington, DC 20503.
- Hand Delivery: U.S. Environmental Protection Agency, EPA West (Air Docket), Room 3334, 1301 Constitution Ave., NW, Washington, DC 20004, Attention Docket ID Number EPA-HQ-OAR-2012-0510. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions. Direct your comments to Docket ID Number EPA-HQ-OAR-2012-0510. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at http://www.regulations.gov, including any personal information provided, unless the comment includes information claimed to be confidential business information (CBI) or other information whose disclosure is restricted by

statute. Do not submit information that you consider to be CBI or otherwise protected through http://www.regulations.gov or email. The http://www.regulations.gov website is an "anonymous access" system, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through http://www.regulations.gov, your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should not include special characters or any form of encryption and be free of any defects or viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at: http://www.epa.gov/dockets.

Docket. The EPA has established a docket for this rulemaking under Docket ID Number EPA-HQ-OAR-2012-0510. All documents in the docket are listed in the regulations.gov index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by

statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy. Publicly available docket materials are available either electronically in regulations.gov or in hard copy at the EPA Docket Center, EPA West, Room 3334, 1301 Constitution Ave., NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

Public Hearing. If anyone contacts the EPA requesting a public hearing by [INSERT DATE 10 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], the public hearing will be held on November 20, 2013, from 10:00 a.m. to 4:00 p.m. on the EPA campus at 109 T.W. Alexander Drive in Research Triangle Park, North Carolina. Persons interested in presenting oral testimony or inquiring as to whether a public hearing will be held should contact Ms. Pamela Garrett, Sector Policies and Programs Division (D243-01), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-7966; fax number: (919) 541-5450; and email address: garrett.pamela@epa.gov.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact Ms. Kaye Whitfield, Sector Policies and

Programs Division (D243-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-2509; fax number: (919) 541-5450; and email address: whitfield.kaye@epa.gov. For specific information regarding the risk modeling methodology, contact Mr. Chris Sarsony, Health and Environmental Impacts Division (C539-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541–4843; fax number: (919) 541-0840; and email address: sarsony.chris@epa.gov. For information about the applicability of the National Emission Standards for Hazardous Air Pollutants (NESHAP) to a particular entity, contact Mr. Scott Throwe, Office of Enforcement and Compliance Assurance; telephone number: (202) 564–7013 fax number: (202) 564-0050; and email address: throwe.scott@epa.gov.

SUPPLEMENTARY INFORMATION:

Preamble Acronyms and Abbreviations

This preamble includes several acronyms and terms used to describe industrial processes, data inventories and risk modeling. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

ABA auxiliary blowing agent

AEGL	acute exposure guideline levels
AERMOD	air dispersion model used by the HEM-3 model
BAAQMD	Bay Area Air Quality Management District
CAA	Clean Air Act
CalEPA	California EPA
CBI	Confidential Business Information
CDX	Central Data Exchange
CEDRI	Compliance and Emissions Data Reporting Interface
CFR	Code of Federal Regulations
EIS	Emission Inventory System
EPA	Environmental Protection Agency
ERPG	Emergency Response Planning Guidelines
ERT	Electronic Reporting Tool
FPUF	Flexible Polyurethane Foam
FR	Federal Register
HAP	hazardous air pollutants
HCl	hydrogen chloride
HEM-3	Human Exposure Model, Version 1.1.0
HI	hazard index
HF	hydrogen fluoride
HQ	hazard quotient
ICR	information collection request
IRIS	Integrated Risk Information System
kg	kilogram
km	kilometer
lb	pound
LDAR	leak detection and repair
MACT	maximum achievable control technology
MACT Code	Code within the National Emissions Inventory used to identify processes included in a source category
mg/kg-day	milligrams per kilogram per day
mg/m^3	milligrams per cubic meter
MIR	maximum individual risk
NAICS	North American Industry Classification System
NEI	National Emissions Inventory
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NRC	National Research Council
NRDC	Natural Resources Defense Council

NTTAA	National Technology Transfer and Advancement Act
OAQPS	Office of Air Quality Planning and Standards
OMB	Office of Management and Budget
PB-HAP	hazardous air pollutants known to be persistent and bio-accumulative in the environment
POM	polycyclic organic matter
PFA	Polyurethane Foam Association
ppm	parts per million
QA	quality assurance
REL	reference exposure level
RCO	recuperative thermal oxidizer
RfC	reference concentration
RfD	reference dose or daily oral exposure
RTO	regenerative thermal oxidizer
RTR	residual risk and technology review
SAB	Science Advisory Board
SBA	Small Business Administration
S/L/Ts	State, local, and tribal air pollution control agencies
SOP	standing operating procedures
SSM	startup, shutdown and malfunction
TOSHI	target organ-specific hazard index
tpy	tons per year
TRI	Toxics Release Inventory
TRIM	Total Risk Integrated Methodology
TTN	Technology Transfer Network
UF	uncertainty factors
$\mu g/m^3$	microgram per cubic meter
UMRA	Unfunded Mandates Reform Act
URE	unit risk estimate
VCS	voluntary consensus standards
WWW	world wide web

Organization of this Document. The information in this preamble is organized as follows:

I. General Information

A. Does this action apply to me?

I. General Information

A. Does this action apply to me?

Table 1 of this preamble lists the industrial source category that is the subject of this proposal. Table 1 is not intended to be exhaustive but rather to provide a guide for readers regarding the entities that this proposed action is likely to affect. The proposed standards, once finalized, will be directly applicable to the affected sources. One federal entity is affected by this proposed action, and no state, local or tribal government entities are affected by this proposed action. As defined in the "Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990" (see 57 FR 31576, July 16, 1992), the "Flexible Polyurethane Foam Production" source category is any facility engaged in the manufacture of foam made from a polymer containing a plurality of carbamate linkages in the chain backbone (polyurethane)[1].

Table 1. NESHAP and Industrial Source Category Affected by this Proposed Action

[1] U.S. EPA, 1992. Documentation for Developing the Initial Source Category List – Final Report. EPA-450/3-91-030.

Source Category	NESHAP	NAICS code[a]
Flexible Polyurethane Foam Production	Flexible Polyurethane Foam Production	326150

[a] North American Industry Classification System

B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this action is available on the Internet through the EPA's Technology Transfer Network (TTN) website, a forum for information and technology exchange in various areas of air pollution control. Following signature by the EPA Administrator, the EPA will post a copy of this proposed action on the TTN's policy and guidance page for newly proposed or promulgated rules at: http://www.epa.gov/ttn/oarpg/t3pfpr.html. Following publication in the Federal Register, the EPA will post the Federal Register version of the proposal and key technical documents on the project website: http://www.epa.gov/ttn/atw/foam/foampg.html. Information on the overall residual risk and technology review (RTR) program is available at the following website: http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.

C. What should I consider as I prepare my comments for the EPA?

Submitting CBI. Do not submit information containing CBI to the EPA through http://www.regulations.gov or email. Clearly

mark the part or all of the information that you claim to be CBI. For CBI information on a disk or CD-ROM that you mail to the EPA, mark the outside of the disk or CD-ROM as CBI and then identify electronically within the disk or CD-ROM the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI for inclusion in the public docket. If you submit a CD-ROM or disk that does not contain CBI, mark the outside of the disk or CD-ROM clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2. Send or deliver information identified as CBI only to the following address: Roberto Morales, OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID Number EPA-HQ-OAR-2012-0510.

II. Background

A. What is the statutory authority for this action?

Section 112 of the Clean Air Act (CAA) establishes a two-stage regulatory process to address emissions of hazardous air

pollutants (HAP) from stationary sources. In the first stage, after the EPA has identified categories of sources emitting one or more of the HAP listed in CAA section 112(b), CAA section 112(d) requires us to promulgate technology-based NESHAP for those sources. "Major sources" are those that emit or have the potential to emit 10 tons per year (tpy) or more of a single HAP or 25 tpy or more of any combination of HAP. For major sources, the technology-based NESHAP must reflect the maximum degree of emissions reductions of HAP achievable (after considering cost, energy requirements and non-air quality health and environmental impacts) and are commonly referred to as maximum achievable control technology (MACT) standards.

MACT standards must reflect the maximum degree of emissions reduction achievable through the application of measures, processes, methods, systems or techniques, including, but not limited to, measures that (1) reduce the volume of or eliminate pollutants through process changes, substitution of materials or other modifications; (2) enclose systems or processes to eliminate emissions; (3) capture or treat pollutants when released from a process, stack, storage or fugitive emissions point; (4) are design, equipment, work practice or operational standards (including requirements for operator training or certification); or (5) are a combination of the above. CAA section 112(d)(2)(A)-(E). The MACT standards may take the form

of design, equipment, work practice or operational standards where the EPA first determines either that (1) a pollutant cannot be emitted through a conveyance designed and constructed to emit or capture the pollutant, or that any requirement for, or use of, such a conveyance would be inconsistent with law; or (2) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations. CAA section 112(h)(1)-(2).

The MACT "floor" is the minimum control level allowed for MACT standards promulgated under CAA section 112(d)(3) and may not be based on cost considerations. For new sources, the MACT floor cannot be less stringent than the emissions control that is achieved in practice by the best-controlled similar source. The MACT floor for existing sources can be less stringent than floors for new sources but not less stringent than the average emissions limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources). In developing MACT standards, the EPA must also consider control options that are more stringent than the floor. We may establish standards more stringent than the floor based on considerations of the cost of achieving the emissions reductions, any non-air quality health and environmental impacts and energy requirements.

The EPA is then required to review these technology-based standards and revise them "as necessary (taking into account developments in practices, processes and control technologies)" no less frequently than every eight years. CAA section 112(d)(6). In conducting this review, the EPA is not required to recalculate the MACT floor. Natural Resources Defense Council (NRDC) v. EPA, 529 F.3d 1077, 1084 (D.C. Cir., 2008). Association of Battery Recyclers, Inc. v. EPA, 716 F.3d 667 (D.C. Cir. 2013).

The second stage in standard-setting focuses on reducing any remaining (i.e., "residual") risk according to CAA section 112(f). This provision requires, first, that the EPA prepare a report to Congress discussing (among other things) methods of calculating the risks posed (or potentially posed) by sources after implementation of the MACT standards, the public health significance of those risks and the EPA's recommendations as to legislation regarding such remaining risk. The EPA prepared and submitted the Residual Risk Report to Congress, EPA-453/R-99-001 (Risk Report) in March 1999. Congress did not act in response, thereby triggering the EPA's obligation under CAA section 112(f)(2) to analyze and address residual risk.

Section 112(f)(2) of the CAA requires the EPA to determine for source categories subject to MACT standards whether the emission standards provide an ample margin of safety to protect

public health. Section 112(f)(2)(B) of the CAA expressly preserves the EPA's use of the two-step process for developing standards to address any residual risk and the agency's interpretation of "ample margin of safety" developed in the National Emissions Standards for Hazardous Air Pollutants: Benzene Emissions from Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, and Coke By-Product Recovery Plants (Benzene NESHAP) (54 FR 38044, September 14, 1989). The EPA notified Congress in the Risk Report that the agency intended to use the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations (EPA-453/R-99-001, p. ES-11). The EPA subsequently adopted this approach in its residual risk determinations, and in a challenge to the risk review for the Synthetic Organic Chemical Manufacturing source category, the United States Court of Appeals for the District of Columbia Circuit upheld as reasonable the EPA's interpretation that subsection 112(f)(2) incorporates the standards established in the Benzene NESHAP. See NRDC v. EPA, 529 F.3d 1077, 1083 (D.C. Cir. 2008)("[S]ubsection 112(f)(2)(B) expressly incorporates the EPA's interpretation of the Clean Air Act from the Benzene standard, complete with a citation to the Federal Register."); see also A Legislative History of the Clean Air Act Amendments of 1990, vol. 1, p. 877 (Senate debate on Conference Report).

The first step in this process is the determination of acceptable risk. If risks are unacceptable, the EPA cannot consider cost in identifying the emissions standards necessary to bring risks to an acceptable level. The second step is the determination of whether standards must be further revised in order to provide an ample margin of safety to protect public health, which is the level at which the standards must be set, unless an even more stringent standard is necessary to prevent, taking into consideration costs, energy, safety and other relevant factors, an adverse environmental effect.

1. Determining Acceptability.

The agency in the Benzene NESHAP concluded that "that the acceptability of risk under section 112 is best judged on the basis of a broad set of health risk measures and information" and that the "judgment on acceptability cannot be reduced to any single factor." Id. at 38046. The determination of what represents an "acceptable" risk is based on a judgment of "what risks are acceptable in the world in which we live" (Risk Report at 178, quoting NRDC v. EPA, 824 F.2d 1146, 1165 (D.C. Cir. 1987) (en banc) ("Vinyl Chloride"), recognizing that our world is not risk-free.

In the Benzene NESHAP, we stated that "EPA will generally presume that if the risk to [the maximum exposed] individual is no higher than approximately one in 10 thousand, that risk level

is considered acceptable." 54 FR 38045. We discussed the maximum individual lifetime cancer risk (or maximum individual risk (MIR)) as being "the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years." Id. We explained that this measure of risk "is an estimate of the upper bound of risk based on conservative assumptions, such as continuous exposure for 24 hours per day for 70 years." Id. We acknowledged that maximum individual lifetime cancer risk "does not necessarily reflect the true risk, but displays a conservative risk level which is an upper-bound that is unlikely to be exceeded." Id.

Understanding that there are both benefits and limitations to using the MIR as a metric for determining acceptability, we acknowledged in the Benzene NESHAP that "consideration of maximum individual risk * * * must take into account the strengths and weaknesses of this measure of risk." Id. Consequently, the presumptive risk level of 100-in-1 million (1-in-10 thousand) provides a benchmark for judging the acceptability of maximum individual lifetime cancer risk, but does not constitute a rigid line for making that determination. Further, in the Benzene NESHAP, we noted that:

> "[p]articular attention will also be accorded to the weight of evidence presented in the risk assessment of potential carcinogenicity or other health effects of a pollutant. While the same numerical risk may be estimated for an exposure to a pollutant judged to be a known human

> carcinogen, and to a pollutant considered a possible human carcinogen based on limited animal test data, the same weight cannot be accorded to both estimates. In considering the potential public health effects of the two pollutants, the Agency's judgment on acceptability, including the MIR, will be influenced by the greater weight of evidence for the known human carcinogen."

Id. at 38046. The agency also explained in the Benzene NESHAP that:

> "[i]n establishing a presumption for MIR, rather than a rigid line for acceptability, the Agency intends to weigh it with a series of other health measures and factors. These include the overall incidence of cancer or other serious health effects within the exposed population, the numbers of persons exposed within each individual lifetime risk range and associated incidence within, typically, a 50 km exposure radius around facilities, the science policy assumptions and estimation uncertainties associated with the risk measures, weight of the scientific evidence for human health effects, other quantified or unquantified health effects, effects due to co-location of facilities, and co-emission of pollutants."

Id. At 38045. In some cases, these health measures and factors taken together may provide a more realistic description of the magnitude of risk in the exposed population than that provided by maximum individual lifetime cancer risk alone.

As noted earlier, in NRDC v. EPA, the court held that section 112(f)(2) "incorporates the EPA's interpretation of the Clean Air Act from the Benzene Standard." The court further held that Congress' incorporation of the Benzene standard applies equally to carcinogens and non-carcinogens. 529 F.3d at 1081-82. Accordingly, we also consider non-cancer risk metrics in our determination of risk acceptability and ample margin of safety.

2. Determination of Ample Margin of Safety.

CAA section 112(f)(2) requires the EPA to determine, for source categories subject to MACT standards, whether those standards provide an ample margin of safety to protect public health. As explained in the Benzene NESHAP, "the second step of the inquiry, determining an 'ample margin of safety,' again includes consideration of all of the health factors, and whether to reduce the risks even further.... Beyond that information, additional factors relating to the appropriate level of control will also be considered, including costs and economic impacts of controls, technological feasibility, uncertainties and any other relevant factors. Considering all of these factors, the agency will establish the standard at a level that provides an ample margin of safety to protect the public health, as required by section 112." 54 FR 38046.

According to CAA section 112(f)(2)(A), if the MACT standards for HAP "classified as a known, probable, or possible human carcinogen do not reduce lifetime excess cancer risks to the individual most exposed to emissions from a source in the category or subcategory to less than one in one million," the EPA must promulgate residual risk standards for the source category (or subcategory), as necessary to provide an ample margin of safety to protect public health. In doing so, the EPA may adopt standards equal to existing MACT standards if the EPA

determines that the existing standards (i.e. the MACT standards) are sufficiently protective. NRDC v. EPA, 529 F.3d 1077, 1083 (D.C. Cir. 2008) ("If EPA determines that the existing technology-based standards provide an 'ample margin of safety,' then the Agency is free to readopt those standards during the residual risk rulemaking.") The EPA must also adopt more stringent standards, if necessary, to prevent an adverse environmental effect,[2] but must consider cost, energy, safety and other relevant factors in doing so.

The CAA does not specifically define the terms "individual most exposed," "acceptable level" and "ample margin of safety." In the Benzene NESHAP, 54 FR 38044-38045, we stated as an overall objective:

> In protecting public health with an ample margin of safety under section 112, EPA strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately 1-in-1 million and (2) limiting to no higher than approximately 1-in-10 thousand [i.e., 100-in-1 million] the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years.

The agency further stated that "[t]he EPA also considers incidence (the number of persons estimated to suffer cancer or

[2] "Adverse environmental effect" is defined as any significant and widespread adverse effect, which may be reasonably anticipated to wildlife, aquatic life or natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental qualities over broad areas. CAA section 112(a)(7).

other serious health effects as a result of exposure to a pollutant) to be an important measure of the health risk to the exposed population. Incidence measures the extent of health risks to the exposed population as a whole, by providing an estimate of the occurrence of cancer or other serious health effects in the exposed population." Id. at 38045.

In the ample margin of safety decision process, the agency again considers all of the health risks and other health information considered in the first step, including the incremental risk reduction associated with standards more stringent than the MACT standard or a more stringent standard that EPA has determined is necessary to ensure risk is acceptable. In the ample margin of safety analysis, the agency considers additional factors, including costs and economic impacts of controls, technological feasibility, uncertainties and any other relevant factors. Considering all of these factors, the agency will establish the standard at a level that provides an ample margin of safety to protect the public health, as required by CAA section 112(f). 54 FR 38046.

B. What is this source category and how do the MACT standards regulate its HAP emissions?

The MACT standards for Flexible Polyurethane Foam (FPUF) Production were promulgated on October 7, 1998, (63 FR 53980) and codified at 40 CFR part 63, subpart III. The FPUF Production

MACT standards apply to each new and existing flexible polyurethane foam or rebond foam process that produces flexible polyurethane foam or rebond foam, emits HAP, and is located at a contiguous, major source plant site. The requirements of the standards are the same for both new and existing sources.

There are three types of FPUF producers in the source category: slabstock, molded and rebond. Slabstock foam is produced in large continuous buns that are then cut into the desired size and shape. Slabstock foam products are primarily used in furniture seat cushions and bedding materials. Molded foam is produced by "shooting" the foam mixture into a mold of the desired shape and size. Molded foam is typically used in automotive seats, packaging and a range of specialty products. Rebond foam is made from scrap foam that is converted into a material primarily used for carpet underlay. Rebond foam production is often co-located with slabstock foam production facilities.

Slabstock and molded polyurethane foams are produced by mixing three major ingredients: a polyol polymer, an isocyanate and water. The polyol is either a polyether or polyester polymer with hydroxyl end groups. Other ingredients are often added to modify the polymer, and catalysts are used to balance the principal foam production reactions. Auxiliary blowing agents (ABAs) may be used to produce specific densities and grades of

foam where the gases produced by the isocyanate-water reaction are insufficient to achieve the desired density. ABAs are more widely used in the production of slabstock foams than in the production of molded foams. Rebond foam is produced from scrap slabstock or molded polyurethane foam.

The HAP emission points at FPUF production facilities depend on the type of foam being produced. Prior to compliance with the original FPUF Production MACT standards, the primary HAP emission point for slabstock foam facilities was the foam production line, due to emissions of HAP ABAs. Other HAP emission points at slabstock production facilities include storage vessels and equipment leaks. At molded and rebond foam facilities, the primary HAP emission points are storage vessels and equipment leaks.

Many facilities discontinued use of HAP ABAs before the rule's October 2001 compliance date, allowing these facilities to be designated as area sources. Based on the best information available, slabstock production facilities using HAP ABAs on, or after, the rule's October 2001 compliance date also have discontinued use of HAP-based ABAs. We solicit comment on the use of HAP-based ABAs and whether any facilities in the FPUF production source category currently use these products.

In the past decade, the FPUF production source category has experienced plant closures and consolidations. Today, there are

13 FPUF production facilities subject to the MACT standards: 7 slabstock, 6 molded and 2 rebond. One rebond facility is co-located with a slabstock facility, and the other rebond facility is co-located with a molded foam facility. A list of these facilities is included in the memorandum, Development of the RTR Emissions Dataset for the Flexible Polyurethane Foam Production Source Category, which is available in the docket for this proposed rulemaking.

The FPUF Production MACT standards contain requirements specific for each of the three types of foam production processes. For slabstock foam production, the FPUF Production MACT standards include diisocyanate and HAP ABA emissions reduction requirements. For molded and rebond foam production, the FPUF Production MACT standards prohibit the use of HAP in mold release agents and equipment cleaners, except in very limited circumstances.

For slabstock foam production, the FPUF Production MACT standards regulate emissions of diisocyanates from storage vessels, transfer pumps and equipment leaks. The storage vessel requirements include the installation of either a vapor recovery system or a carbon adsorption system. Transfer pumps are required to be either sealless pumps or pumps submerged in a neutral oil, and submerged pumps must be visually inspected

periodically for leaks. All components in diisocyanate service must be repaired when a leak is detected.

Standards for HAP ABA emissions at slabstock facilities include emission point requirements for the foam production line, storage vessels, equipment leaks and equipment cleaning. For the slabstock production line, the FPUF Production MACT standards contain restrictions on the amount of HAP ABAs that can be used, based on the grades of foam produced. The FPUF Production MACT standards also regulate HAP ABAs by requiring installation of either a vapor recovery system or a carbon adsorption system on storage vessels. For equipment leaks, the FPUF Production MACT standards require a leak detection and repair program (LDAR) for HAP ABAs. The use of HAP or HAP-based products for equipment cleaning is prohibited at slabstock flexible polyurethane foam production facilities. This proposed rule also includes an alternative source-wide HAP ABA emission limit. The source-wide emission limit allows slabstock facilities to comply by limiting the total amount of a single HAP ABA used, rather than by complying with the individual HAP ABA emission point requirements (e.g., production line, LDAR, equipment cleaning).

For molded foam and rebond foam production, the FPUF Production MACT standards prohibit the use of HAP-based products as mold release agents and as equipment cleaners, except that

diisocyanates may be used to flush the mixhead and associated piping during startup and maintenance if the diisocyanates are contained in a closed-loop system and re-used in production.

C. What data collection activities were conducted to support this action?

In 2011, we surveyed nine companies that own and operate foam production facilities, as provided for under section 114 of the CAA. We also conducted plant visits to four facilities in 2012 and 2013, retrieved permit data from approximately 32 state agencies, and obtained emissions inventory data from state agencies. Finally, we reviewed data in four EPA emission inventory databases: National Emissions Inventory (NEI), Emissions Inventory System (EIS), Toxics Release Inventory (TRI) and Envirofacts to identify facilities that may be part of the source category, emission sources and quantities of emissions. The CAA section 114 questionnaire included requests for available information regarding process equipment, control devices and work practices for emission reductions, point and fugitive emissions and other aspects of facility operations.

The emissions data and risk assessment inputs for the FPUF production source category are described further in the memorandum Development of the RTR Emissions Dataset for the Flexible Polyurethane Foam Production Source Category, which is available in the docket for this proposed rulemaking.

III. Analytical Procedures

In this section, we describe the analyses performed to support the proposed decisions for the RTR and other issues addressed in this proposal.

A. How did we estimate post-MACT risks posed by the source category?

The EPA conducted a risk assessment that provided estimates of the MIR posed by the HAP emissions from each source in the source category, the hazard index (HI) for chronic exposures to HAP with the potential to cause non-cancer health effects and the hazard quotient (HQ) for acute exposures to HAP with the potential to cause non-cancer health effects. The assessment also provided estimates of the distribution of cancer risks within the exposed populations, cancer incidence and an evaluation of the potential for adverse environmental effects for the source category. The risk assessment consisted of eight primary steps, as discussed below. The docket for this rulemaking contains the following document, which provides more information on the risk assessment inputs and models: Draft Residual Risk Assessment for the Flexible Polyurethane Foam Production Source Category. The methods used to assess risks (as described in the eight primary steps below) are consistent with those peer-reviewed by a panel of the EPA's Science Advisory Board (SAB) in 2009 and described in their peer review report

issued in 2010[3]; they are also consistent with the key recommendations contained in that report.

1. How did we estimate actual emissions and identify the emissions release characteristics?

Data from the 13 existing FPUF production facilities were used to create a dataset that is the basis for the risk assessment. We estimated the amount of actual and allowable emissions using data collected through the CAA section 114 request, emission inventories (EIS, NEI and TRI) and site visits. We performed quality assurance (QA) procedures for the emissions data and release characteristics to identify any outliers, and then confirmed or corrected the data. For facilities where speciated HAP data were unavailable or unreliable, more recent inventory data were obtained from state or local permitting agencies. In addition to the QA of the source data for the facilities contained in the dataset, we also checked the coordinates of every emission source in the dataset through visual observations using tools such as Google Earth and ArcView, and made corrections, as necessary. Further information about the development of the dataset is provided in the technical document: Draft Development of the RTR Emissions

[3] U.S. EPA SAB. Risk and Technology Review (RTR) Risk Assessment Methodologies: For Review by the EPA's Science Advisory Board with Case Studies – MACT I Petroleum Refining Sources and Portland Cement Manufacturing, May 2010.

Dataset for the Flexible Polyurethane Foam Production Source Category, which is available in the docket for this action.

2. How did we estimate MACT-Allowable emissions?

The available emissions data in the MACT dataset include estimates of the mass of HAP emitted during the specified annual time period. In some cases, these "actual" emission levels are lower than the emission levels a facility is allowed to emit and still comply with the MACT standards. The emissions level allowed to be emitted by the MACT standards is referred to as the "MACT-allowable" emissions level. This represents the highest emissions level that could be emitted by facilities without violating the MACT standards. We discussed the use of both MACT-allowable and actual emissions in the final Coke Oven Batteries residual risk rule (70 FR 19998–19999, April 15, 2005) and in the proposed and final Hazardous Organic NESHAP residual risk rules (71 FR 34428, June 14, 2006, and 71 FR 76609, December 21, 2006, respectively). In those previous actions, we noted that assessing the risks at the MACT-allowable level is inherently reasonable since these risks reflect the maximum level facilities could emit and still comply with national emission standards. We also explained that it is reasonable to consider actual emissions, where such data are available, in both steps of the risk analysis, in accordance with the Benzene NESHAP. (54 FR 38044, September 14, 1989.)

For the FPUF production source category, we determined that actual emissions are a reasonable estimate of the MACT-allowable emissions for molded and rebond foam facilities. The MACT requirements for these facilities are HAP use prohibitions, and both the actual and the MACT-allowable emissions, while in compliance with these requirements, are therefore zero.

For slabstock foam production facilities, we estimate that the level of diisocyanate actual emissions is a reasonable estimate of the MACT-allowable diisocyanate emissions. The diisocyanate storage vessels and other equipment are subject to equipment standards and work practices. For equipment standards, sources subject to the standards are required to install specific equipment. In order to comply with this proposed rule, the equipment must be maintained properly and in good working condition. Therefore, we do not expect any difference between the actual emissions level and the level allowed by the MACT standards because the level of control typically does not vary for equipment standards. Similarly, we do not expect any difference between actual and MACT-allowable emissions for emission sources subject to work practice requirements, provided that facilities are not conducting additional work practices proven to reduce emissions beyond those required in this proposed rule. We are not aware of any such situations at facilities in this source category. Therefore, for facilities

complying with the equipment and work practice standards, we believe that the actual diisocyanate emission levels are a reasonable estimation of the levels allowed by the standards.

For HAP ABA emissions from slabstock facilities, we estimate that MACT-allowable emissions are higher than actual emissions. While we believe that all slabstock production facilities have discontinued use of HAP-based ABAs, and they are reporting zero emissions of HAP ABA, the MACT rule does not prohibit the use of HAP ABAs. Therefore, MACT-allowable HAP ABA emissions were attributed to each slabstock facility based on emissions information gathered during development of the MACT standards. We assigned appropriate emissions release parameters for each facility, and modeled using the same procedures and tools used for modeling actual emissions, to obtain facility-specific maximum risk values based on MACT-allowable emissions. The docket for this rulemaking contains the following document which provides more information on the development of estimated MACT-allowable emissions: MACT-Allowable Emissions for the Flexible Polyurethane Foam Production Source Category.

3. How did we conduct dispersion modeling, determine inhalation exposure and estimate individual and population inhalation risks?

Both long-term and short-term inhalation exposure concentrations and health risks from the source category

addressed in this proposal were estimated using the Human Exposure Model (Community and Sector HEM-3 version 1.1.0). The HEM-3 performs three primary risk assessment activities: (1) conducting dispersion modeling to estimate the concentrations of HAP in ambient air, (2) estimating long-term and short-term inhalation exposures to individuals residing within 50 kilometers (km) of the modeled sources[4], and (3) estimating individual and population-level inhalation risks using the exposure estimates and quantitative dose-response information.

The air dispersion model used by the HEM-3 model (AERMOD) is one of the EPA's preferred models for assessing pollutant concentrations from industrial facilities.[5] To perform the dispersion modeling and to develop the preliminary risk estimates, HEM-3 draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes 1 year (2011) of hourly surface and upper air observations for more than 824 meteorological stations, selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block[6] internal point locations and

[4] This metric comes from the Benzene NESHAP. See 54 FR 38046.
[5] U.S. EPA. Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions (70 FR 68218, November 9, 2005).
[6] A census block is the smallest geographic area for which census statistics are tabulated.

populations provides the basis of human exposure calculations (U.S. Census, 2010). In addition, for each census block, the census library includes the elevation and controlling hill height, which are also used in dispersion calculations. A third library of pollutant unit risk factors and other health benchmarks is used to estimate health risks. These risk factors and health benchmarks are the latest values recommended by the EPA for HAP and other toxic air pollutants. These values are available at: http://www.epa.gov/ttn/atw/toxsource/summary.html and are discussed in more detail later in this section.

In developing the risk assessment for chronic exposures, we used the estimated annual average ambient air concentrations of each HAP emitted by each source for which we have emissions data in the source category. The air concentrations at each nearby census block centroid were used as a surrogate for the chronic inhalation exposure concentration for all the people who reside in that census block. We calculated the MIR for each facility as the cancer risk associated with a continuous lifetime (24 hours per day, 7 days per week and 52 weeks per year for a 70-year period) exposure to the maximum concentration at the centroid of inhabited census blocks. Individual cancer risks were calculated by multiplying the estimated lifetime exposure to the ambient concentration of each of the HAP (in micrograms per cubic meter ($\mu g/m^3$)) by its unit risk estimate (URE), which is an upper bound

estimate of an individual's probability of contracting cancer over a lifetime of exposure to a concentration of 1 microgram of the pollutant per cubic meter of air. For residual risk assessments, we generally use URE values from the EPA's Integrated Risk Information System (IRIS). For carcinogenic pollutants without EPA IRIS values, we look to other reputable sources of cancer dose-response values, often using California EPA (CalEPA) URE values, where available. In cases where new, scientifically credible dose response values have been developed in a manner consistent with the EPA guidelines and have undergone a peer review process similar to that used by the EPA, we may use such dose-response values in place of, or, in addition to, other values, if appropriate.

The EPA estimated incremental individual lifetime cancer risks associated with emissions from the facilities in the source category as the sum of the risks for each of the carcinogenic HAP (including those classified as carcinogenic to humans, likely to be carcinogenic to humans and suggestive evidence of carcinogenic potential[7]) emitted by the modeled

[7] These classifications also coincide with the terms "known carcinogen, probable carcinogen, and possible carcinogen," respectively, which are the terms advocated in the EPA's previous Guidelines for Carcinogen Risk Assessment, published in 1986 (51 FR 33992, September 24, 1986). Summing the risks of these individual compounds to obtain the cumulative cancer risks is an approach that was recommended by the EPA's Science Advisory Board (SAB) in their 2002 peer review of EPA's National Air Toxics Assessment (NATA) titled, NATA - Evaluating the National-scale Air Toxics Assessment 1996 Data -- an SAB Advisory, available at:

sources. Cancer incidence and the distribution of individual cancer risks for the population within 50 km of the sources were also estimated for the source category as part of this assessment by summing individual risks. A distance of 50 km is consistent with both the analysis supporting the 1989 Benzene NESHAP (54 FR 38044) and the limitations of Gaussian dispersion models, including AERMOD.

To assess the risk of non-cancer health effects from chronic exposures, we summed the HQ for each of the HAP that affects a common target organ system to obtain the HI for that target organ system (or target organ-specific HI, TOSHI). The HQ is the estimated exposure divided by the chronic reference value, which is either the EPA reference concentration (RfC) (http://www.epa.gov/riskassessment/glossary.htm), defined as "an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime," or, in cases where an RfC from the EPA's IRIS database is not available, a value from the following prioritized sources: (1) the Agency for Toxic Substances and Disease Registry Minimum Risk Level

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http://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/$File/ecadv02001.pdf.

(http://www.atsdr.cdc.gov/mrls/index.asp), which is defined as "an estimate of daily human exposure to a hazardous substance that is likely to be without an appreciable risk of adverse non-cancer health effects (other than cancer) over a specified duration of exposure"; (2) the CalEPA Chronic Reference Exposure Level (REL) (http://www.oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf), which is defined as "the concentration level (that is expressed in units of micrograms per cubic meter ($\mu g/m^3$) for inhalation exposure and in a dose expressed in units of milligram per kilogram-day (mg/kg-day) for oral exposures), at or below which no adverse health effects are anticipated for a specified exposure duration"; or (3), as noted above, a scientifically credible dose-response value that has been developed in a manner consistent with the EPA guidelines and has undergone a peer review process similar to that used by the EPA, in place of or in concert with other values.

The EPA also evaluated screening estimates of acute exposures and risks for each of the HAP at the point of highest off-site exposure for each facility (i.e., not just the census block centroids), assuming that a person is located at this spot at a time when both the peak (hourly) emissions rate and worst-case dispersion conditions occur. The acute HQ is the estimated acute exposure divided by the acute dose-response value. In each

case, the EPA calculated acute HQ values using best available, short-term dose-response values. These acute dose-response values, which are described below, include the acute REL, acute exposure guideline levels (AEGL) and emergency response planning guidelines (ERPG) for 1-hour exposure durations. As discussed below, we used conservative assumptions for emissions rates, meteorology and exposure location for our acute analysis.

As described in the CalEPA's Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I, The Determination of Acute Reference Exposure Levels for Airborne Toxicants, an acute REL value (http://www.oehha.ca.gov/air/pdf/acuterel.pdf) is defined as "the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration." Id. at page 2. Acute REL values are based on the most sensitive, relevant, adverse health effect reported in the peer-reviewed medical and toxicological literature. Acute REL values are designed to protect the most sensitive individuals in the population by the inclusion of margins of safety. Because margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact.

AEGL values were derived in response to recommendations from the National Research Council (NRC). As described in Standing Operating Procedures (SOP) of the National Advisory

Committee on Acute Exposure Guideline Levels for Hazardous Substances (http://www.epa.gov/oppt/aegl/pubs/sop.pdf),[8] "the NRC's previous name for acute exposure levels—community emergency exposure levels—was replaced by the term AEGL to reflect the broad application of these values to planning, response, and prevention in the community, the workplace, transportation, the military, and the remediation of Superfund sites." Id. at 2. This document also states that AEGL values "represent threshold exposure limits for the general public and are applicable to emergency exposures ranging from 10 minutes to eight hours." Id. at 2. The document lays out the purpose and objectives of AEGL by stating that "the primary purpose of the AEGL program and the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances is to develop guideline levels for once-in-a-lifetime, short-term exposures to airborne concentrations of acutely toxic, high-priority chemicals." Id. at 21. In detailing the intended application of AEGL values, the document states that "[i]t is anticipated that the AEGL values will be used for regulatory and nonregulatory purposes by U.S. federal and state agencies and possibly the international community in conjunction with chemical emergency response, planning and prevention programs. More specifically,

[8] National Academy of Sciences (NAS), 2001. Standing Operating Procedures for Developing Acute Exposure Levels for Hazardous Chemicals, page 2.

the AEGL values will be used for conducting various risk assessments to aid in the development of emergency preparedness and prevention plans, as well as real-time emergency response actions, for accidental chemical releases at fixed facilities and from transport carriers." Id. at 31.

The AEGL-1 value is then specifically defined as "the airborne concentration (expressed as ppm (parts per million) or mg/m^3 (milligrams per cubic meter)) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure." Id. at 3. The document also notes that, "Airborne concentrations below AEGL-1 represent exposure levels that can produce mild and progressively increasing but transient and nondisabling odor, taste, and sensory irritation or certain asymptomatic, nonsensory effects." Id. Similarly, the document defines AEGL-2 values as "the airborne concentration (expressed as parts per million or milligrams per cubic meter) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape." Id.

ERPG values are derived for use in emergency response, as described in the American Industrial Hygiene Association's ERP Committee document titled, ERPGS Procedures and Responsibilities (http://sp4m.aiha.org/insideaiha/GuidelineDevelopment/ERPG/Documents/ERP-SOPs2006.pdf), which states that, "Emergency Response Planning Guidelines were developed for emergency planning and are intended as health based guideline concentrations for single exposures to chemicals."[9] Id. at 1. The ERPG-1 value is defined as "the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor." Id. at 2. Similarly, the ERPG-2 value is defined as "the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action." Id. at 1.

As can be seen from the definitions above, the AEGL and ERPG values include the similarly-defined severity levels 1 and 2. For many chemicals, a severity level 1 value AEGL or ERPG has not been developed because the types of effects for these

[9] ERP Committee Procedures and Responsibilities. November 1, 2006. American Industrial Hygiene Association.

chemicals are not consistent with the AEGL-1/ERPG-1 definitions; in these instances, we compare higher severity level AEGL–2 or ERPG–2 values to our modeled exposure levels to screen for potential acute concerns. When AEGL-1/ERPG-1 values are available, they are used in our acute risk assessments.

Acute REL values for 1-hour exposure durations are typically lower than their corresponding AEGL–1 and ERPG–1 values. Even though their definitions are slightly different, AEGL–1 values are often the same as the corresponding ERPG–1 values, and AEGL–2 values are often equal to ERPG–2 values. Maximum HQ values from our acute screening risk assessments typically result when basing them on the acute REL value for a particular pollutant. In cases where our maximum acute HQ value exceeds 1, we also report the HQ value based on the next highest acute dose-response value (usually the AEGL–1 and/or the ERPG–1 value).

To develop screening estimates of acute exposures in the absence of hourly emissions data, generally we first develop estimates of maximum hourly emissions rates by multiplying the average actual annual hourly emissions rates by a default factor to cover routinely variable emissions. We choose the factor to use partially based on process knowledge and engineering judgment, but also reflecting a Texas study of short-term emissions variability, which showed that most peak emission

events in a heavily-industrialized four-county area (Harris, Galveston, Chambers and Brazoria Counties, Texas) were less than twice the annual average hourly emissions rate. The highest peak emissions event was 74 times the annual average hourly emissions rate, and the 99th percentile ratio of peak hourly emissions rate to the annual average hourly emissions rate was 9.[10] Considering this analysis, to account for more than 99 percent of the peak hourly emissions, we apply a conservative screening multiplication factor of 10 to the average annual hourly emissions rate in our acute exposure screening assessments as our default approach. However, we use a factor other than 10 if we have information that indicates that a different factor is appropriate for a particular source category. For this source category, however, there was no such information available and the default factor of 10 was used in the acute screening process.

As part of our acute risk assessment process, for cases where acute HQ values from the screening step were less than or equal to 1 (even under the conservative assumptions of the screening analysis), acute impacts were deemed negligible and no further analysis was performed. In cases where an acute HQ from the screening step was greater than 1, additional site-specific

[10] See http://www.tceq.state.tx.us/compliance/field_ops/eer/index.html or docket to access the source of these data.

data were considered to develop a more refined estimate of the potential for acute impacts of concern. Ideally, we would prefer to have continuous measurements over time to see how the emissions vary by each hour over an entire year. Having a frequency distribution of hourly emissions rates over a year would allow us to perform a probabilistic analysis to estimate potential threshold exceedances and their frequency of occurrence. Such an evaluation could include a more complete statistical treatment of the key parameters and elements adopted in this screening analysis. However, we recognize that having this level of data is rare; hence, our use of the multiplier approach.

To better characterize the potential health risks associated with estimated acute exposures to HAP, and in response to a key recommendation from the SAB's peer review of the EPA's RTR risk assessment methodologies,[11] we generally examine a wider range of available acute health metrics (e.g., RELs, AEGLs) than we do for our chronic risk assessments. This is in response to the SAB's acknowledgement that there are generally more data gaps and inconsistencies in acute reference values than there are in chronic reference values. In some

[11] The SAB peer review of RTR Risk Assessment Methodologies is available at: http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf.

cases, when Reference Value Arrays[12] for HAP have been developed, we consider additional acute values (i.e., occupational and international values) to provide a more complete risk characterization.

4. How did we conduct the multipathway exposure and risk screening?

The EPA conducted a screening analysis examining the potential for significant human health risks due to exposures via routes other than inhalation (i.e., ingestion). We first determined whether any sources in the source category emitted any hazardous air pollutants known to be persistent and bioaccumulative in the environment (PB-HAP). The PB-HAP compounds or compound classes are identified for the screening from the EPA's Air Toxics Risk Assessment Library (available at http://www.epa.gov/ttn/fera/risk_atra_vol1.html).

For the FPUF production source category, we did not identify emissions of any PB-HAP. Because we did not identify PB-HAP emissions, no further evaluation of multipathway risk was conducted for this source category.

5. How did we assess risks considering emissions control options?

[12] U.S. EPA. (2009) Chapter 2.9 Chemical Specific Reference Values for Formaldehyde in Graphical Arrays of Chemical-Specific Health Effect Reference Values for Inhalation Exposures (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-09/061, and available on-line at http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=211003.

In addition to assessing baseline inhalation risks and screening for potential multipathway risks, we also estimated risks considering the potential emissions reductions that would be achieved by the control options under consideration. In these cases, the expected emissions reductions were applied to the specific HAP and emissions points in the source category dataset to develop corresponding estimates of risk and incremental risk reductions.

6. How did we conduct the environmental risk screening assessment?

a. Adverse Environmental Effect

The EPA developed a screening approach to examine the potential for adverse environmental effects as required under section 112(f)(2)(A) of the CAA. Section 112(a)(7) of the CAA defines "adverse environmental effect" as "any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas."

b. Environmental HAP

The EPA focuses on seven HAP, which we refer to as "environmental HAP," in its screening analysis: five persistent bioaccumulative HAP (PB-HAP) and two acid gases. The five PB-HAP

are cadmium, dioxins/furans, polycyclic organic matter (POM), mercury (both inorganic mercury and methyl mercury) and lead. The two acid gases are hydrogen chloride (HCl) and hydrogen fluoride (HF). The rationale for including these seven HAP in the environmental risk screening analysis is presented below.

HAP that persist and bioaccumulate are of particular environmental concern because they accumulate in the soil, sediment and water. The PB-HAP are taken up, through sediment, soil, water, and/or ingestion of other organisms, by plants or animals (e.g., small fish) at the bottom of the food chain. As larger and larger predators consume these organisms, concentrations of the PB-HAP in the animal tissues increases as does the potential for adverse effects. The five PB-HAP we evaluate as part of our screening analysis account for 99.8 percent of all PB-HAP emissions (based on data from the 2005 NEI).

In addition to accounting for almost all of the mass of PB-HAP emitted, we note that the TRIM.Fate model that we use to evaluate multipathway risk allows us to estimate concentrations of cadmium compounds, dioxins/furans, POM and mercury in soil, sediment and water. For lead, we currently do not have the ability to calculate these concentrations using the TRIM.Fate model. Therefore, to evaluate the potential for environmental effects from lead, we compare the estimated chronic inhalation

exposures from the source category emissions of lead with the level of the secondary National Ambient Air Quality Standard (NAAQS) for lead.[13] We consider values below the level of the secondary lead NAAQS as unlikely to cause adverse environmental effects.

Due to their well-documented potential to cause direct damage to terrestrial plants, we include two acid gases, HCl and HF, in the environmental screening analysis. According to the 2005 NEI, HCl and HF account for about 99 percent of the total acid gas HAP emitted by stationary sources. In addition to the potential to cause direct damage to plants, high concentrations of HF in the air have been linked to fluorosis in livestock. Air concentrations of these HAP are already calculated as part of the human multipathway exposure and risk screening analysis using the HEM3-AERMOD air dispersion model, and we are able to use the air dispersion modeling to estimate the potential for an adverse environmental effect.

For the FPUF production source category, the data do not show emissions of any of the seven HAP (cadmium, dioxins/furans, POM, mercury, HCL or HF) in the environmental risk screen.

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[13] The secondary lead NAAQS is a reasonable measure of determining whether there is an adverse environmental effect since it was established considering "effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being."

Because we did not identify emissions of these seven HAP from the source category, we did not conduct any further quantitative evaluation of environmental risk.

The EPA acknowledges that other HAP beyond the seven HAP discussed above may have the potential to cause adverse environmental effects. Therefore, the EPA may include other relevant HAP in its environmental risk screening in the future, as modeling science and resources allow. The EPA invites comment on the extent to which other HAP emitted by the source category may cause adverse environmental effects. Such information should include references to peer-reviewed ecological effects benchmarks that are of sufficient quality for making regulatory decisions, as well as information on the presence of organisms located near facilities within the source category that such benchmarks indicate could be adversely affected.

7. How did we conduct facility-wide assessments?

To put the source category risks in context, we typically examine the risks from the entire "facility," where the facility includes all HAP-emitting operations within a contiguous area and under common control. In other words, we examine the HAP emissions not only from the source category emission points of interest, but also emissions of HAP from all other emissions sources at the facility for which we have data. The emissions data for estimating these "facility-wide" risks were obtained

from the 2005 NEI (available at http://www.epa.gov/ttn/atw/nata2005). We analyzed risks due to the inhalation of HAP that are emitted "facility-wide" for the populations residing within 50 km of each facility, consistent with the methods used for the source category analysis described above. For these facility-wide risk analyses, the modeled FPUF production source category risks were compared to the facility-wide risks to determine the portion of facility-wide risks that could be attributed to the FPUF production source category. We specifically examined the facilities associated with the highest estimates of risk and determined the percentage of that risk attributable to the FPUF production source category. The Draft Residual Risk Assessment for the Flexible Polyurethane Foam Production Source Category, available through the docket for this action, provides all the methodology and results of the facility-wide analyses, including all facility-wide risks and the percentage of FPUF production source category contribution to facility-wide risks.

8. How did we consider uncertainties in risk assessment?

In the Benzene NESHAP, we concluded that risk estimation uncertainty should be considered in our decision-making under the ample margin of safety framework. Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for this proposal. Although

uncertainty exists, we believe that our approach, which used conservative tools and assumptions, ensures that our decisions are health-protective. A brief discussion of the uncertainties in the emissions dataset, dispersion modeling, inhalation exposure estimates and dose-response relationships follows below. A more thorough discussion of these uncertainties is included in the Draft Residual Risk Assessment for the Flexible Polyurethane Foam Production Source Category, which is available in the docket for this action.

a. Uncertainties in the Emissions Dataset

Although the development of the RTR dataset involved quality assurance/quality control processes, the accuracy of emissions values will vary depending on the source of the data, the degree to which data are incomplete or missing, the degree to which assumptions made to complete the datasets are accurate, errors in emissions estimates and other factors. The emission estimates considered in this analysis generally are annual totals for certain years, and they do not reflect short-term fluctuations during the course of a year or variations from year to year. The estimates of peak hourly emissions rates for the acute effects screening assessment were based on an emission adjustment factor applied to the average annual hourly emissions rates, which are intended to account for emission fluctuations due to normal facility operations.

b. Uncertainties in Dispersion Modeling

We recognize there is uncertainty in ambient concentration estimates associated with any model, including the EPA's recommended regulatory dispersion model, AERMOD. In using a model to estimated ambient pollutant concentrations, the user chooses certain options to apply. For RTR assessments, we select some model options that have the potential to overestimate ambient air concentrations (e.g., not including plume depletion or pollutant transformation). We select other model options that have the potential to underestimate ambient impacts (e.g., not including building downwash). Other options that we select have the potential to either under- or over-estimate ambient levels (e.g., meteorology and receptor locations). On balance, considering the directional nature of the uncertainties commonly present in ambient concentrations estimated by dispersion models, the approach we apply in the RTR assessments should yield unbiased estimates of ambient HAP concentrations.

c. Uncertainties in Inhalation Exposure

The EPA did not include the effects of human mobility on exposures in the assessment. Specifically, short-term mobility and long-term mobility between census blocks in the modeling

domain were not considered.[14] The approach of not considering short- or long-term population mobility does not bias the estimate of the theoretical MIR (by definition), nor does it affect the estimate of cancer incidence because the total population number remains the same. It does, however, affect the shape of the distribution of individual risks across the affected population, shifting it toward higher estimated individual risks at the upper end and reducing the number of people estimated to be at lower risks, thereby increasing the estimated number of people at specific high risk levels (e.g., 1-in-10 thousand or 1-in-1 million).

In addition, the assessment predicted the chronic exposures at the centroid of each populated census block as surrogates for the exposure concentrations for all people living in that block. Using the census block centroid to predict chronic exposures tends to over-predict exposures for people in the census block who live farther from the facility and under-predict exposures for people in the census block who live closer to the facility. Thus, using the census block centroid to predict chronic exposures may lead to a potential understatement or overstatement of the true maximum impact, but is an unbiased

[14] Short-term mobility is movement from one micro-environment to another over the course of hours or days. Long-term mobility is movement from one residence to another over the course of a lifetime.

estimate of average risk and incidence. We reduce this uncertainty by analyzing large census blocks near facilities using aerial imagery and adjusting the location of the block centroid to better represent the population in the block, as well as adding additional receptors where the block population is not well represented by a single location.

The assessment evaluates the cancer inhalation risks associated with pollutant exposures over a 70-year period, which is the assumed lifetime of an individual. In reality, both the length of time that modeled emissions sources at facilities actually operate (i.e., more or less than 70 years) and the domestic growth or decline of the modeled industry (i.e., the increase or decrease in the number or size of domestic facilities) will influence the future risks posed by a given source or source category. Depending on the characteristics of the industry, these factors will, in most cases, result in an overestimate both in individual risk levels and in the total estimated number of cancer cases. However, in the unlikely scenario where a facility maintains, or even increases, its emissions levels over a period of more than 70 years, residents live beyond 70 years at the same location, and the residents spend most of their days at that location, then the cancer inhalation risks could potentially be underestimated. However, annual cancer incidence estimates from exposures to emissions

from these sources would not be affected by the length of time an emissions source operates.

The exposure estimates used in these analyses assume chronic exposures to ambient (outdoor) levels of pollutants. Because most people spend the majority of their time indoors, actual exposures may not be as high, depending on the characteristics of the pollutants modeled. For many of the HAP, indoor levels are roughly equivalent to ambient levels, but for very reactive pollutants or larger particles, indoor levels are typically lower. This factor has the potential to result in an overstatement of 25 to 30 percent of exposures.[15]

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment that should be highlighted. The accuracy of an acute inhalation exposure assessment depends on the simultaneous occurrence of independent factors that may vary greatly, such as hourly emissions rates, meteorology and human activity patterns. In this assessment, we assume that individuals remain for 1 hour at the point of maximum ambient concentration as determined by the co-occurrence of peak emissions and worst-case meteorological conditions. These assumptions would tend to be worst-case actual exposures as it is unlikely that a person would be located at

[15] U.S. EPA. National-Scale Air Toxics Assessment for 1996. (EPA 453/R-01-003; January 2001; page 85.)

the point of maximum exposure during the time of worst-case impact.

d. Uncertainties in Dose-Response Relationships

There are uncertainties inherent in the development of the dose-response values used in our risk assessments for cancer effects from chronic exposures and non-cancer effects from both chronic and acute exposures. Some uncertainties may be considered quantitatively, and others generally are expressed in qualitative terms. We note as a preface to this discussion a point on dose-response uncertainty that is brought out in the EPA's 2005 Cancer Guidelines; namely, that "the primary goal of EPA actions is protection of human health; accordingly, as an Agency policy, risk assessment procedures, including default options that are used in the absence of scientific data to the contrary, should be health protective" (EPA 2005 Cancer Guidelines, pages 1-7). This is the approach followed here as summarized in the next several paragraphs. A complete detailed discussion of uncertainties and variability in dose-response relationships is given in the Draft Residual Risk Assessment for the Flexible Polyurethane Foam Production Source Category, which is available in the docket for this action.

Cancer URE values used in our risk assessments are those that have been developed to generally provide an upper bound estimate of risk. That is, they represent a "plausible upper

limit to the true value of a quantity" (although this is usually not a true statistical confidence limit).[16] In some circumstances, the true risk could be as low as zero; however, in other circumstances the risk could be greater.[17] When developing an upper bound estimate of risk and to provide risk values that do not underestimate risk, health-protective default approaches are generally used. To err on the side of ensuring adequate health protection, the EPA typically uses the upper bound estimates rather than lower bound or central tendency estimates in our risk assessments, an approach that may have limitations for other uses (e.g., priority-setting or expected benefits analysis).

RfCs and reference doses (RfDs) represent chronic exposure levels that provide an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure or a daily oral exposure, respectively, to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. To derive values that are intended to be "without appreciable risk," the methodology relies upon an uncertainty factor (UF) approach (U.S. EPA, 1993, 1994) which considers

[16] IRIS glossary (http://www.epa.gov/NCEA/iris/help_gloss.htm).
[17] An exception to this is the URE for benzene, which is considered to cover a range of values, each end of which is considered to be equally plausible, and which is based on maximum likelihood estimates.

uncertainty, variability and gaps in the available data. The UFs are applied to derive reference values that are intended to protect against appreciable risk of deleterious effects. The UFs are commonly default values,[18] e.g., factors of 10 or 3, used in the absence of compound-specific data; where data are available, UFs may also be developed using compound-specific information. When data are limited, more assumptions are needed and more UFs are used.

While collectively termed "UF," these factors account for a number of different quantitative considerations when using observed animal (usually rodent) or human toxicity data in the development of the RfC. The UF are intended to account for: (1) variation in susceptibility among the members of the human population (i.e., inter-individual variability); (2) uncertainty in extrapolating from experimental animal data to humans (i.e., interspecies differences); (3) uncertainty in extrapolating from

[18] According to the NRC report, Science and Judgment in Risk Assessment (NRC, 1994) "[Default] options are generic approaches, based on general scientific knowledge and policy judgment, that are applied to various elements of the risk assessment process when the correct scientific model is unknown or uncertain." The 1983 NRC report, Risk Assessment in the Federal Government: Managing the Process, defined default option as "the option chosen on the basis of risk assessment policy that appears to be the best choice in the absence of data to the contrary" (NRC, 1983a, p. 63). Therefore, default options are not rules that bind the agency; rather, the agency may depart from them in evaluating the risks posed by a specific substance when it believes this to be appropriate. In keeping with EPA's goal of protecting public health and the environment, default assumptions are used to ensure that risk to chemicals is not underestimated (although defaults are not intended to overtly overestimate risk). See EPA, 2004, An Examination of EPA Risk Assessment Principles and Practices, EPA/100/B-04/001 available at: http://www.epa.gov/osa/pdfs/ratf-final.pdf.

data obtained in a study with less-than-lifetime exposure (i.e., extrapolating from sub-chronic to chronic exposure); (4) uncertainty in extrapolating the observed data to obtain an estimate of the exposure associated with no adverse effects; and (5) uncertainty when the database is incomplete or there are problems with the applicability of available studies.

Many of the UF used to account for variability and uncertainty in the development of acute reference values are quite similar to those developed for chronic durations, but they more often use individual UF values that may be less than 10. The UF are applied based on chemical-specific or health effect-specific information (e.g., simple irritation effects do not vary appreciably between human individuals; hence a value of 3 is typically used), or based on the purpose for the reference value (see the following paragraph). The UF applied in acute reference value derivation include: (1) heterogeneity among humans; (2) uncertainty in extrapolating from animals to humans; (3) uncertainty in lowest observed adverse effect (exposure) level to no observed adverse effect (exposure) level adjustments; and (4) uncertainty in accounting for an incomplete database on toxic effects of potential concern. Additional adjustments are often applied to account for uncertainty in extrapolation from observations at one exposure duration (e.g.,

4 hours) to derive an acute reference value at another exposure duration (e.g., 1 hour).

Not all acute reference values are developed for the same purpose and care must be taken when interpreting the results of an acute assessment of human health effects relative to the reference value or values being exceeded. Where relevant to the estimated exposures, the lack of short-term dose-response values at different levels of severity should be factored into the risk characterization as potential uncertainties.

For a group of compounds that are unspeciated (e.g., glycol ethers), we conservatively use the most protective reference value of an individual compound in that group to estimate risk. Similarly, for an individual compound in a group (e.g., ethylene glycol diethyl ether) that does not have a specified reference value, we also apply the most protective reference value from the other compounds in the group to estimate risk.

e. Uncertainties in the Multipathway Assessment

For each source category, we generally rely on site-specific levels of PB-HAP emissions to determine whether a refined assessment of the impacts from multipathway exposures is necessary. This determination is based on the results of a two-tiered screening analysis that relies on the outputs from models that estimate environmental pollutant concentrations and human exposures for four PB-HAP. Two important types of uncertainty

associated with the use of these models in RTR risk assessments and inherent to any assessment that relies on environmental modeling are model uncertainty and input uncertainty.[19]

Model uncertainty concerns whether the selected models are appropriate for the assessment being conducted and whether they adequately represent the actual processes that might occur for that situation. An example of model uncertainty is the question of whether the model adequately describes the movement of a pollutant through the soil. This type of uncertainty is difficult to quantify. However, based on feedback received from previous EPA Science Advisory Board reviews and other reviews, we are confident that the models used in the screen are appropriate and state-of-the-art for the multipathway risk assessments conducted in support of RTR.

Input uncertainty is concerned with how accurately the models have been configured and parameterized for the assessment at hand. For Tier 1 of the multipathway screen, we configured the models to avoid underestimating exposure and risk to reduce the likelihood that the results indicate the risks are lower than they actually are. This was accomplished by selecting upper-end values from nationally-representative data sets for

[19] In the context of this discussion, the term "uncertainty" as it pertains to exposure and risk encompasses both ***variability*** in the range of expected inputs and screening results due to existing spatial, temporal, and other factors, as well as ***uncertainty*** in being able to accurately estimate the true result.

the more influential parameters in the environmental model, including selection and spatial configuration of the area of interest, lake location and size, meteorology, surface water and soil characteristics and structure of the aquatic food web. We also assume an ingestion exposure scenario and values for human exposure factors that represent reasonable maximum exposures.

In Tier 2 of the multipathway assessment, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using upper-end national values and we identify the actual location of lakes near the facility rather than the default lake location that we apply in Tier 1. By refining the screening approach in Tier 2 to account for local geographical and meteorological data, we decrease the likelihood that concentrations in environmental media are overestimated, thereby increasing the usefulness of the screen. The assumptions and the associated uncertainties regarding the selected ingestion exposure scenario are the same for Tier 1 and Tier 2.

For both Tiers 1 and 2 of the multipathway assessment, our approach to addressing model input uncertainty is generally cautious. We choose model inputs from the upper end of the range of possible values for the influential parameters used in the models, and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure.

This approach reduces the likelihood of not identifying high risks for adverse impacts.

Despite the uncertainties, when individual pollutants or facilities do screen out, we are confident that the potential for adverse multipathway impacts on human health is very low. On the other hand, when individual pollutants or facilities do not screen out, it does not mean that multipathway impacts are significant, only that we cannot rule out that possibility and that a refined multipathway analysis for the site might be necessary to obtain a more accurate risk characterization for the source category.

For further information on uncertainties and the Tier 1 and 2 screening methods, refer to the risk document Appendix 5, "Technical Support Document for TRIM-Based Multipathway Tiered Screening Methodology for RTR."

B. How did we consider the risk results in making decisions for this proposal?

As discussed in section II.A of this preamble, in evaluating and developing standards under section 112(f)(2), we apply a two-step process to address residual risk. In the first step, the EPA determines whether risks are acceptable. This determination "considers all health information, including risk estimation uncertainty, and includes a presumptive limit on

maximum individual lifetime [cancer] risk (MIR)[20] of approximately [1-in-10 thousand] [i.e., 100-in-1 million].” 54 FR 38045. If risks are unacceptable, the EPA must determine the emissions standards necessary to bring risks to an acceptable level without considering costs. In the second step of the process, the EPA considers whether the emissions standards provide an ample margin of safety “in consideration of all health information, including the number of persons at risk levels higher than approximately 1-in-1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision.” Id. The EPA must promulgate tighter emission standards if necessary to provide an ample margin of safety. After conducting the ample margin of safety analysis, we consider whether a more stringent standard is necessary to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect. After conducting the ample margin of safety analysis, we consider whether a more stringent standard is necessary to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

[20] Although defined as “maximum individual risk,” MIR refers only to cancer risk. MIR, one metric for assessing cancer risk, is the estimated risk were an individual exposed to the maximum level of a pollutant for a lifetime.

In past residual risk actions, the EPA considered a number of human health risk metrics associated with emissions from the categories under review, including the MIR, the number of persons in various risk ranges, cancer incidence, the maximum non-cancer HI and the maximum acute non-cancer hazard. See, e.g., 72 FR 25138, May 3, 2007; 71 FR 42724, July 27, 2006. The EPA considered this health information for both actual and allowable emissions. See, e.g., 75 FR 65068, October 21, 2010; 75 FR 80220, December 21, 2010; 76 FR 29032, May 19, 2011. The EPA also discussed risk estimation uncertainties and considered the uncertainties in the determination of acceptable risk and ample margin of safety in these past actions. The EPA considered this same type of information in support of this Federal Register notice.

The agency is considering these various measures of health information to inform our determinations of risk acceptability and ample margin of safety under CAA section 112(f). As explained in the Benzene NESHAP, "the first step judgment on acceptability cannot be reduced to any single factor" and thus "[t]he Administrator believes that the acceptability of risk under [previous] section 112 is best judged on the basis of a broad set of health risk measures and information." 54 FR 38046. Similarly, with regard to the ample margin of safety determination, "the Agency again considers all of the health

risk and other health information considered in the first step. Beyond that information, additional factors relating to the appropriate level of control will also be considered, including cost and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors." Id.

The Benzene NESHAP provides flexibility regarding factors the EPA may consider in making determinations and how the EPA may weigh those factors for each source category. In responding to comment on our policy under the Benzene NESHAP, the EPA explained that:

> "[t]he policy chosen by the Administrator permits consideration of multiple measures of health risk. Not only can the MIR figure be considered, but also incidence, the presence of non-cancer health effects, and the uncertainties of the risk estimates. In this way, the effect on the most exposed individuals can be reviewed as well as the impact on the general public. These factors can then be weighed in each individual case. This approach complies with the *Vinyl Chloride* mandate that the Administrator ascertain an acceptable level of risk to the public by employing [her] expertise to assess available data. It also complies with the Congressional intent behind the CAA, which did not exclude the use of any particular measure of public health risk from the EPA's consideration with respect to CAA section 112 regulations, and thereby implicitly permits consideration of any and all measures of health risk which the Administrator, in [her] judgment, believes are appropriate to determining what will 'protect the public health'."

54 FR 38057. Thus, the level of the MIR is only one factor to be weighed in determining acceptability of risks. The Benzene NESHAP explained that "an MIR of approximately one in 10 thousand should ordinarily be the upper end of the range of

acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the Agency may find, in a particular case, that a risk that includes MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors." Id. at 38045. Similarly, with regard to the ample margin of safety analysis, the EPA stated in the Benzene NESHAP that: "EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category." Id. at 38061. We also consider the uncertainties associated with the various risk analyses, as discussed earlier in this preamble, in our determinations of acceptability and ample margin of safety.

The EPA notes that it has not considered certain health information to date in making residual risk determinations. At this time, we do not attempt to quantify those HAP risks that may be associated with emissions from other facilities that do not include the source categories in question, mobile source emissions, natural source emissions, persistent environmental

pollution or atmospheric transformation in the vicinity of the sources in these categories.

The agency understands the potential importance of considering an individual's total exposure to HAP in addition to considering exposure to HAP emissions from the source category and facility. We recognize that such consideration may be particularly important when assessing non-cancer risks, where pollutant-specific exposure health reference levels (e.g., RfCs) are based on the assumption that thresholds exist for adverse health effects. For example, the agency recognizes that, although exposures attributable to emissions from a source category or facility alone may not indicate the potential for increased risk of adverse non-cancer health effects in a population, the exposures resulting from emissions from the facility in combination with emissions from all of the other sources (e.g., other facilities) to which an individual is exposed may be sufficient to result in increased risk of adverse non-cancer health effects. In May 2010, the SAB advised the EPA "that RTR assessments will be most useful to decision makers and communities if results are presented in the broader context of aggregate and cumulative risks, including background

concentrations and contributions from other sources in the area."[21]

In response to the SAB recommendations, the EPA is incorporating cumulative risk analyses into its RTR risk assessments. The agency is: (1) conducting facility-wide assessments, which include source category emission points as well as other emission points within the facilities; (2) considering overlapping sources in the same category; and (3) for some persistent and bioaccumulative pollutants, analyzing the ingestion route of exposure. In addition, the RTR risk assessments have always considered aggregate cancer risk from all carcinogens and aggregate non-cancer hazard indices from all non-carcinogens affecting the same target organ system.

Although we are interested in placing source category and facility-wide HAP risks in the context of total HAP risks from all sources combined in the vicinity of each source, we are concerned about the uncertainties of doing so. Because of the contribution to total HAP risk from emissions sources other than those that we have studied in depth during this RTR review, such estimates of total HAP risks would have significantly greater

[21] EPA's responses to this and all other key recommendations of the SAB's advisory on RTR risk assessment methodologies (which is available at: http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf) are outlined in a memo to this rulemaking docket from David Guinnup titled, EPA's Actions in Response to the Key Recommendations of the SAB Review of RTR Risk Assessment Methodologies.

associated uncertainties than the source category or facility-wide estimates. Such aggregate or cumulative assessments would compound those uncertainties, making the assessments too unreliable.

C. How did we perform the technology review?

Our technology review focused on the identification and evaluation of developments in practices, processes and control technologies that have occurred since the FPUF Production MACT standards were promulgated. Where we identified such developments, in order to inform our decision of whether it is "necessary" to revise the emissions standards, we analyzed the technical feasibility of applying these developments, and the estimated costs, energy implications, non-air environmental impacts, as well as considering the emissions reductions. We also considered the appropriateness of applying controls to new sources versus retrofitting existing sources.

Based on our analyses of the available data and information, we identified potential developments in practices, processes and control technologies. For this exercise, we considered any of the following to be a "development":

- Any add-on control technology or other equipment that was not identified and considered during development of the original MACT standards.
- Any improvements in add-on control technology or other equipment (that were identified and considered during

development of the original MACT standards) that could result in additional emissions reduction.

- Any work practice or operational procedure that was not identified or considered during development of the original MACT standards.
- Any process change or pollution prevention alternative that could be broadly applied to the industry and that was not identified or considered during development of the original MACT standards.
- Any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during the development of the original MACT standards).

We reviewed a variety of data sources in our investigation of potential practices, processes or controls to consider. Among the sources we reviewed were the NESHAP for various industries that were promulgated since the FPUF Production MACT standards being reviewed in this action. We reviewed the regulatory requirements and/or technical analyses associated with these regulatory actions to identify any practices, processes and control technologies considered in these efforts that could be applied to emissions sources in the FPUF production source category, as well as the costs, non-air impacts and energy implications associated with the use of these technologies. Additionally, we requested information from facilities regarding developments in practices, processes or control technology. Finally, we reviewed information from other sources, such as state and/or local permitting agency databases and industry-supported databases.

D. What other analyses and reviews were conducted in support of this proposal and how did we conduct those analyses and reviews?

In addition to the analyses described above, we reviewed the FPUF Production MACT standards to determine whether we should make additional amendments. From this review we have identified one additional revision. We are proposing revisions to the startup, shutdown and malfunction (SSM) provisions of the MACT rule in order to ensure that they are consistent with the court decision in Sierra Club v. EPA, 551 F.3d 1019 (D.C. Cir. 2008), which vacated two provisions that exempted sources from the requirement to comply with otherwise applicable section 112(d) emission standards during periods of SSM. Our analyses and proposed changes related to these issues are presented in section IV.D of this preamble.

IV. Analytical Results and Proposed Decisions

This section of the preamble provides the results of our RTR reviews of the FPUF Production MACT standards and our proposed revisions to the FPUF Production MACT standards regarding the startup, shutdown and malfunction provisions.

A. What are the results of the risk assessment and analyses?

As described above, for the FPUF production source category, we conducted an inhalation risk assessment for all HAP emitted, a multipathway screening analysis for PB-HAP emitted and an environmental HAP screening analysis. We also performed a

facility-wide risk assessment for the facilities in the source category. Results of the risk assessment are presented briefly below and in more detail in the residual risk document: Draft Residual Risk Assessment for the Flexible Polyurethane Foam Production Source Category, which is available in the docket for this rulemaking.

1. FPUF Production Source Category Inhalation Risk Assessment Results.

Table 2 of this preamble provides a summary of the results of the inhalation risk assessment for the source category.

Table 2. Flexible Polyurethane Foam Production Inhalation Risk Assessment Results

Number of Facilities[1]	Maximum Individual Cancer Risk (in 1 million)[2]		Estimated Population at increased Risk of cancer ≥ 1-in-1 Million		Estimated Annual Cancer Incidence (cases per year)		Maximum Chronic Non-cancer TOSHI[3]		Maximum Screening Acute Non-cancer HQ[4]	
	Based on Actual Emissions Level[2]	Based on Allowable Emissions Level	Based on Actual Emissions Level[2]	Based on Allowable Emissions Level	Based on Actual Emissions Level[2]	Based on Allowable Emissions Level	Based on Actual Emissions Level	Based on Allowable Emissions Level	Based on Actual Emissions Level	Based on Allowable Emissions Level
13	0.7	5	0	700	0.00004	0.0004	0.9	0.9	HQ_{ERPG-1} = 0.9	HQ_{REL} = 4 HQ_{ERPG-1}=0.9

[1] Number of facilities evaluated in the risk analysis.
[2] Maximum individual excess lifetime cancer risk due to HAP emissions from the source category.
[3] Maximum TOSHI. The target organ with the highest TOSHI for the FPUF production source category is the respiratory system.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which in most cases is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute dose-response value. See section III.A.3 of this preamble for explanation of acute dose-response values.

The results of the inhalation risk modeling using actual emissions level data, as shown in Table 2, indicate that the maximum lifetime individual cancer risk could be up to 0.7-in-1 million, the maximum chronic non-cancer TOSHI value could be up to 0.9, and the maximum off-site acute HQ value could be up to 0.9. The total estimated national cancer incidence from these facilities based on actual emission levels is 0.00004 excess cancer cases per year or one case in every 25,000 years.

As discussed in section III.A.2, we also determined that MACT-allowable HAP ABA emissions levels at slabstock production facilities are greater than actual HAP ABA emissions, while allowable emissions from all other processes are equal to actual emissions. The inhalation risk modeling using MACT-allowable HAP ABA emissions and the actual emissions for the other processes at slabstock production facilities, indicate that the maximum lifetime individual cancer risk could be up to 5-in-1 million, the maximum chronic non-cancer TOSHI value could be up to 0.9, and the maximum off-site acute HQ value could be up to 4, based on the REL value for methylene chloride. The total estimated national cancer incidence from these facilities based on the MACT-allowable emission levels is 0.0004 excess cancer cases per year or one case in every 2,500 years. For more detail about the MACT-allowable emissions levels, see the memorandum, MACT-

Allowable Emissions for the Flexible Polyurethane Foam Production Source Category, in the docket for this rulemaking.

2. Acute Risk Results

Table 2 shows the acute risk results for the FPUF production source category. The screening analysis for worst-case acute impacts was based on a conservative default emissions multiplier of 10 to estimate the peak hourly emission rates from the average rates. Refer to Appendix 6 of the draft residual risk document in the docket for the detailed acute risk results.

3. Multipathway Risk Screening Results

There are no PB-HAP emitted by facilities in this category. Therefore, we do not expect there is a potential for human health multipathway risks as a result of emissions of these HAP.

4. Ecological Risk Screening Results

The emissions data for the FPUF source category indicate that sources within this source category do not emit any of the seven pollutants that we identified as "environmental HAP," as discussed earlier in this preamble. Based on the processes and materials used in the source category, we do not expect any of the seven environmental HAP to be emitted. Also, we are unaware of any adverse environmental effect caused by emissions of HAP that are emitted by this source category. Therefore, we do not expect an adverse environmental effect as a result of HAP emissions from this source category.

5. Facility-wide Inhalation Risk Assessment Results

Table 3 displays the results of the facility-wide risk assessment. This assessment is based on actual emission levels. For detailed facility-specific results, see Appendix 6 of the Draft Residual Risk Assessment for the Flexible Polyurethane Foam Production Source Category in the docket for this rulemaking.

Table 3. FPUF Production Facility-Wide Risk Assessment Results

Number of facilities analyzed	13
Cancer Risk:	
Estimated maximum facility-wide individual cancer risk (in 1 million)	20
Number of facilities with estimated facility-wide individual cancer risk of 100-in-1 million or more	0
Number of facilities at which the FPUF production source category contributes 50 percent or more to the facility-wide individual cancer risks of 100-in-1 million or more	0
Number of facilities with estimated facility-wide individual cancer risk of 1-in-1 million or more	3
Number of facilities at which the FPUF production source category contributes 50 percent or more to the facility-wide individual cancer risk of 1-in-1 million or more	0
Chronic Non-cancer Risk:	
Maximum facility-wide chronic non-cancer TOSHI	0.9
Number of facilities with facility-wide maximum non-cancer TOSHI greater than 1	0

Number of facilities at which the FPUF production source category contributes 50 percent or more to the facility-wide maximum non-cancer TOSHI of 1 or more	0

The facility-wide MIR and TOSHI are based on actual emissions from all emissions sources at the identified facilities. The results indicate that 3 facilities have a facility-wide cancer MIR greater than or equal to 1-in-1 million. The maximum facility-wide MIR is 20-in-1 million, with emission points from the FPUF production source category contributing less than 10 percent of the maximum facility-wide risk. The maximum facility-wide TOSHI is 0.9, with the FPUF production source category contributing 100 percent to the facility-wide TOSHI.

6. What demographic groups might benefit from this regulation?

To determine whether or not to conduct a demographics analysis, we look at a combination of factors including the MIR, non-cancer TOSHI, population around the facilities in the source category and other relevant factors. For the FPUF production source category, our analyses show that actual emissions result in no individuals being exposed to cancer risk greater than 1-in-1 million or a non-cancer TOSHI greater than 1. Therefore, we did not conduct an assessment of risks to individual demographic groups for this rulemaking. However, we did conduct a proximity

analysis, which identifies any overrepresentation of minority, low income or indigenous populations near facilities in the source category. The results of this analysis are presented in the section of this preamble titled, "Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."

B. What are our proposed decisions regarding risk acceptability, ample margin of safety and adverse environmental effects?

1. Risk acceptability

As noted in section III.C of this preamble, we weigh all health risk factors in our risk acceptability determination, including the cancer MIR; the number of persons in various cancer and non-cancer risk ranges; cancer incidence; the maximum non-cancer TOSHI; the maximum acute non-cancer HQ; the extent of non-cancer risks; the potential for adverse environmental effects; the distribution of cancer and non-cancer risks in the exposed population; and risk estimation uncertainties (54 FR 38044, September 14, 1989).

For the FPUF production source category, the risk analysis indicates that the cancer risks to the individual most exposed could be up to 0.7-in-1 million due to actual emissions and 5-in-1 million based on MACT-allowable emissions. These risks are considerably less than 100-in-1 million, which is the presumptive upper limit of acceptable risk. The risk analysis

also shows very low cancer incidence (0.00004 cases per year), as well as no potential for adverse chronic or multi-pathway health effects. In addition, the risk assessment indicates no significant potential for multi-pathway health effects or adverse environmental effects. The acute non-cancer risks based on actual emissions are all below an HQ of 1. Therefore, we find there is little potential concern of acute non-cancer health impacts from actual emissions. For acute non-cancer risks based on allowable emissions, there was an HQ of 4 based on the REL for methylene chloride. Since the acute modeling scenario is worst-case because of its confluence of peak emission rates and worst-case dispersion conditions, and since the HQ estimates for methylene chloride based on the AEGL-1 and ERPG-1 values for this facility are below 1, we are proposing to find that acute non-cancer health impacts of concern are unlikely.

Considering all of the health risk information and factors discussed above, including the uncertainties discussed in section III.A.8 of this preamble, we propose that the risks from the FPUF production source category are acceptable.

2. Ample margin of safety analysis and proposed controls

Although we are proposing that the risks from the FPUF production source category are acceptable, risk estimates for 700 individuals in the exposed population are above 1-in-1 million at the MACT-allowable emissions levels. Consequently, we

further considered whether the FPUF Production MACT standards provide an ample margin of safety to protect public health at the MACT-allowable emissions levels. In this ample margin of safety analysis, we investigated available emissions control options that might reduce the risk associated with MACT-allowable emissions from the source category. We considered this information along with all of the health risks and other health information considered in our determination of risk acceptability.

For HAP used as an ABA at slabstock foam production facilities, we considered prohibiting facilities from using any HAP or HAP-based product as an ABA, as an option to reduce risks from this source category. Emissions of HAP ABA were shown to contribute nearly 100 percent to the maximum individual cancer risks at the MACT-allowable emissions level for this source category. This control option would require facilities to use ABAs that do not contain HAP. We estimate the HAP emissions reduction resulting from this control option would be approximately 735 tpy from the baseline MACT-allowable emissions level. We estimate there would be no costs associated with implementation of this option, as all facilities in the source category are reporting that they do not have HAP ABA emissions from the foam production line, and industry representatives have confirmed that all sources have already discontinued use of a

HAP or HAP-based product as an ABA. Furthermore, there are no additional costs associated with the recordkeeping and reporting requirements for compliance. With this control option, we estimate the maximum cancer risks based on allowable emissions would be reduced from 5-in-1 million to less than 1-in-1 million, the annual cancer incidence would be reduced from 0.0004 to 0.00004, the acute HQ would be reduced from 4 to less than 1 and the non-cancer TOSHI would remain unchanged. We believe this HAP ABA prohibition is technically feasible for all slabstock FPUF production operations and is a cost-effective measure to achieve emissions and health risk reductions associated with the MACT-allowable level of emissions. Therefore, based on this analysis, we are proposing under section 112(f)(2) of the CAA to prohibit the use of HAP or HAP-based products as ABAs.

We are proposing that the existing MACT standards, as modified to include the HAP-based ABA prohibition described above, will provide an ample margin of safety to protect public health and prevent an adverse environmental effect.

For diisocyanate storage vessels, as discussed in section IV.C.2. of this preamble, we identified one control option to further reduce HAP emissions from these storage vessels, which were shown to contribute approximately 1 percent to the maximum individual cancer risks at the MACT-allowable emissions level

for the source category. This control option would require sources to increase storage vessel HAP emissions control efficiencies to 98 percent, using technologies such as regenerative thermal oxidizers (RTO) or recuperative thermal oxidizers (RCO). We estimate the resulting HAP reduction would be approximately 0.0026 tpy from the baseline MACT-allowable emissions level. The estimated cost effectiveness per ton of HAP emissions reduction would be $124 million and $269 million, based on using a RTO and RCO, respectively. The additional control requirement would not achieve a reduction in the maximum individual cancer risks or any of the other risk metrics due to emissions at the MACT-allowable level. Due to the minimal reductions in HAP emissions and risk, along with the substantial costs associated with this option, we are proposing that additional HAP emissions controls for FPUF production diisocyanate storage vessels are not necessary to provide an ample margin of safety.

For equipment leaks at slabstock foam production facilities, as discussed in section IV.C.3. of this preamble, we identified several control options to further address risks from leaking components. We estimate that up to 3 percent of the emissions and associated risk at the MACT-allowable levels could

be attributed to equipment leaks.[22] The control options identified include the use of "leakless" valves in diisocyanate service at slabstock facilities and implementation of an enhanced LDAR program for diisocyanate equipment leaks at slabstock facilities. These control options would require sources to use "leakless" valve technology or implement a LDAR program that would incorporate monitoring with EPA Method 21, specific leak definitions, and possibly a limit on the total number of non-repairable equipment allowed. We estimate the HAP reduction resulting from the "leakless" valve technology would be 1 tpy from the baseline MACT-allowable emissions level, with a cost effectiveness of $305,000/ton HAP reduction. The HAP emissions reduction resulting from an enhanced LDAR program would be 0.38 tpy from the baseline MACT-allowable emissions level, with a cost effectiveness of approximately $74,000/ton HAP reduction. The HAP emissions reduction resulting from the portion of an enhanced LDAR program that incorporates limits on the total number of non-repairable equipment allowed would be 0.08 tpy from the baseline MACT-allowable emissions level, with a cost effectiveness of approximately $234,000/ton HAP emissions reduction. None of these additional control requirements for diisocyanate equipment leaks would achieve a reduction in the

[22] Hazardous Air Pollutant Emissions from the Production of Flexible Polyurethane Foam. Basis and Purpose Document for Proposed Standards." Page 6-9. U.S. EPA Office of Air Quality Planning and Standards. September 1996.

maximum individual cancer risks or any of the other health risk metrics. Due to the minimal reductions in HAP emissions and risk, along with the substantial costs associated with these options, we are proposing that additional HAP emissions controls for FPUF production diisocyanate equipment leaks are not necessary to provide an ample margin of safety.

3. Adverse environmental effects

We did not identify emissions of the seven environmental HAP included in our environmental risk screening, and are unaware of any adverse environmental effects caused by other HAP emitted by this source category. Therefore, we do not expect there to be an adverse environmental effect as a result of HAP emissions from this source category, and we are proposing that it is not necessary to set a more stringent standard to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

C. What are the results and proposed decisions based on our technology review?

As described in section III.C of this preamble, our technology review focused on identifying developments in practices, processes and control technologies for the emission sources in the FPUF production source category. The following sections summarize our technology review results. More information concerning our technology review can be found in the

memorandum titled, Technology Review and Cost Impacts for the Proposed Amendments to the Flexible Polyurethane Foam Production Source Category, which is available in the docket.

1. Slabstock Foam Production Line

The current MACT standards allow limited use of HAP-based ABAs at slabstock foam production facilities, while prohibiting the use of HAP-based products, with limited exceptions, for specific purposes at other types of FPUF production facilities (including equipment cleaning, mixhead flushing and facilitating mold release at molded and rebond foam facilities). The FPUF Production MACT standards also prohibit HAP and HAP-based products in equipment cleaners at slabstock foam facilities (except at facilities operating under the provisions for a source-wide emission limit for a single HAP ABA). Prohibiting the use of HAP-based ABAs and HAP-based equipment cleaners at slabstock foam production facilities has been identified as a development in practices and/or processes that could reduce HAP emissions from the slabstock foam production line.

At the time of promulgation of the FPUF MACT standards, the EPA believed that HAP ABAs were necessary for production of some grades of foam. Therefore, the FPUF Production MACT standards significantly limited the use of HAP ABAs by slabstock foam producers, but allowed their use in production of certain grades of foam.

Available data from EPA databases, industry survey responses and contacts with state and local permitting agencies show that none of the 13 facilities currently identified as being subject to the FPUF Production MACT standards are using any HAP ABAs, or ABAs containing HAP (i.e., HAP-based ABAs). Further confirmation was received through discussions with the Polyurethane Foam Association (PFA), a trade association representing the slabstock polyurethane foam production industry. Details of the discussion with PFA are contained in Documentation of Communications with Industry and Regulatory Agency Contacts for the Flexible Polyurethane Foam Industry, which is available in the docket for this rulemaking. The discontinuation of HAP ABAs (or HAP-based ABAs) use by FPUF producers demonstrates that foam producers have improved their ability to produce their products using alternatives to HAP or HAP-based ABAs since the promulgation of the original FPUF Production NESHAP.

No facilities subject to subpart III are currently using any HAP or HAP-based ABAs. Therefore, there will be no cost associated with codifying current industry practice prohibiting the use of HAP or HAP-based ABAs. There may be small cost savings at some facilities due to reduced monitoring and recordkeeping costs. Because there are no estimated costs, the industry is already complying with this HAP and HAP-based ABA

prohibition in practice, and reductions in allowable emissions would be achieved, we are proposing that it is necessary, pursuant to CAA section 112(d)(6), to revise the MACT to prohibit the use of HAP and HAP-based ABAs at slabstock foam production facilities. As noted in section IV.B.2., we are concurrently proposing this HAP and HAP-based ABA prohibition under section 112(f)(2) of the CAA to provide an ample margin of safety to protect public health. Also, as noted in section II.B, we solicit comments regarding whether any facilities subject to subpart III currently use HAP or HAP-based ABAs.

2. Diisocyanate Storage Vessels

The FPUF Production MACT standards provide two compliance options for diisocyanate storage vessels: equip the storage vessels (tanks) with a vapor return line from the storage vessel to the truck or rail car during unloading; or equip the storage vessel with a carbon adsorption system which routes displaced vapors through activated carbon. These control systems are estimated to have control efficiencies of 95 percent. For the technology review, we identified two potential control options to capture and control emissions from storage tanks: regenerative and recuperative thermal oxidizers. Both reportedly have control efficiencies of 98 percent, and known application to low concentration organic vapor gas streams. We estimate an additional emission reduction of 0.0026 tpy would be associated

with an increase from 95 percent estimated HAP control in the original FPUF MACT standards to 98 percent HAP control today. The estimated cost per ton of emissions reduction would be $124 million and $270 million per ton of HAP for regenerative and recuperative thermal oxidizers, respectively.

Based on the high costs and the minimal emissions reductions that would be achieved by these diisocyanate tank controls, we are proposing that it is not necessary to revise the MACT standards pursuant to CAA section 112(d)(6) to provide for a stricter level of control.

3. Equipment Leaks

For equipment leaks, we identified two developments in practices, process or control technologies: use of "leakless" valves in diisocyanate service at slabstock facilities and implementation of an enhanced equipment LDAR for diisocyanate equipment leaks at slabstock facilities. While there are requirements for LDAR in the original MACT standards, we further investigated LDAR for developments that have occurred since the rule was promulgated. The two developments in LDAR programs are a limit on the total number of non-repairable equipment allowed and the inclusion of lower leak detection limits for valves and connectors than those considered previously for the MACT standards.

a. "Leakless" Valves

"Leakless" valves that significantly reduce emissions are in place in some facilities outside the FPUF production source category, particularly oil refineries. We analyzed the costs associated with requiring this "leakless" valve technology for valves in diisocyanate service in the FPUF production source category using cost estimates developed for the synthetic organic chemical manufacturing industry. Nationwide annual costs were estimated to be $310,000/yr, with total capital investments of $2,260,000. Emission reductions were estimated to be 1 tpy, resulting in a cost effectiveness of $305,000/ton HAP reduction.

Based on the high costs and the minimal emissions reductions that would be achieved using this technology, we are proposing that it is not necessary to revise the MACT standards pursuant to CAA section 112(d)(6) to require the installation of "leakless" valves.

b. Implementation of Enhanced LDAR Programs

The current MACT standards require an LDAR program that employs visual, audible or other methods for detecting leaks. This standard requires repair of leaks within 15 calendar days when leaks are detected by visual, audible or any other detection method for equipment, other than transfer pumps, in diisocyanate service. Leakless technology is required for transfer pumps.

During the development of the MACT standards, another LDAR program, using Method 21, was identified as a beyond-the-floor method for controlling emissions from equipment leaks at slabstock foam facilities for equipment in diisocyanate service, but was not chosen as the level of the standard. At that time, the leak definition was set at a HAP concentration of 10,000 ppm or greater. Since the development of the MACT standards, analyses have been performed by the EPA regarding costs and emission reductions in the chemical and petroleum industries associated with lowering the level at which a HAP concentration is considered to be a leak for LDAR programs.[23] We used these analyses in the CAA section 112(d)(6) technology review for the FPUF production source category to assess the effects of adding an enhanced LDAR program for metering pumps, valves, connectors and open-ended lines in diisocyanate service at slabstock foam production facilities. The LDAR program would incorporate monitoring, employing Method 21 of 40 CFR part 60, Appendix A, and lower leak definitions. The lower leak definitions considered include two options identified in the EPA analysis of emissions reduction techniques for equipment leaks:

[23] Memorandum from Cindy Hancy, RTI to Jodi Howard, EPA, Analysis of Emission Reduction Techniques for Equipment Leaks, December 21, 2011. (EPA-HQ-OAR-2002-0037-0180.) See Attachment 1.

1. Leak definition for metering pumps of 2,000 ppm; leak definition for valves, connectors and open-ended lines of 500 ppm;
2. Leak definition for valves of 100 ppm; leak definition for metering pumps, connectors and open-ended lines of 500 ppm.

We analyzed the costs associated with an LDAR programs with these two options for leak definitions for equipment in diisocyanate service. For both options, nationwide total annual costs were estimated to be around $28,200/yr, with total capital investments of approximately $32,400. Reduction of HAP emissions were estimated to be about 0.38 tpy, resulting in a cost effectiveness of approximately $74,000/ton HAP reduction.

The current MACT standards allow leak repairs to be delayed under certain circumstances. Limits on the number of leaking components awaiting repair was also identified as a potential development in practice that could reduce diisocyanate emissions from equipment leaks. Both the California Bay Area Air Quality Management District (BAAQMD) and the South Coast Air Quality Management District have LDAR programs that limit the number of leaking equipment components awaiting repair. The BAAQMD rule also requires mass emission testing for leaking valves and requires valves with a high leak rate to be repaired within 7 days. We estimated the costs of requirements addressing

equipment awaiting leak repair like those of the BAAQMD rule, irrespective of the other costs for an LDAR program. Nationwide annual costs were estimated to be $18,212/yr, with no capital investments required. Emission reductions were estimated to be 0.002 tpy, resulting in a cost effectiveness of $233,770 per ton of HAP reduction for equipment in diisocyanate service at slabstock facilities.

Based on the high costs and the minimal emissions reduction that would be achieved with LDAR programs using Method 21 and either of the leak definition options, or with the restrictions on equipment awaiting repair, we are proposing that it is not necessary to revise the MACT standards pursuant to CAA section 112(d)(6) to require an enhanced LDAR program. However, we are adding a provision to the rule to clarify that delay of leak repairs for valves and connectors must be completed within 6 months of detection, as described in section IV.D.4.

D. What other actions are we proposing?

1. Startup, Shutdown and Malfunctions

a. Background

The United States Court of Appeals for the District of Columbia Circuit vacated portions of two provisions in the EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. Sierra Club v. EPA, 551 F.3d 1019 (D.C. Cir. 2008), *cert. denied*, 130 S. Ct. 1735 (U.S. 2010).

Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1) holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA's requirement that some section 112 standards apply continuously.

We are proposing the elimination of the SSM exemption in this proposed rule. Therefore, this proposed rule has changed the indication of "Yes" to "No" in the General Provisions table (Table 2) of this rule for § 63.6(f), in which § 63.6(f)(1) states, "The non-opacity emission standards set forth in this part shall apply at all times except during periods of startup, shutdown, and malfunction…." Consistent with Sierra Club v. EPA, the EPA is proposing standards in this rule that apply at all times. We are also proposing several revisions to Table 2 (Applicability of General Provisions), as is explained in more detail below. We also are proposing to eliminate and revise certain recordkeeping and reporting requirements related to the SSM exemption as further described below.

The EPA has attempted to ensure that the provisions we are proposing to eliminate are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether we have successfully done so.

In proposing the standards in this rule, the EPA has taken into account startup and shutdown periods and, for the reasons explained below, has not proposed alternate standards for those periods. Information on periods of startup and shutdown received from the facilities in the FPUF production industry indicate that emissions during these periods are the same as during normal operations. The primary means of compliance with the standards are through work practices and product substitutions, which eliminate the use of HAP, and are in place at all times. Therefore, separate standards for periods of startup and shutdown are not necessary and are not being proposed.

Periods of startup, normal operations and shutdown are all predictable and routine aspects of a source's operations. However, by contrast, malfunction is defined as a "sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment or a process to operate in a normal or usual manner * * *" (40 CFR 63.2). The EPA has determined that CAA section 112 does not require that emissions that occur during periods of malfunction be factored into development of CAA section 112 standards. Under CAA section 112, emissions standards for new sources must be no less stringent than the level "achieved" by the best controlled similar source and for existing sources generally must be no less stringent than the average emission limitation "achieved"

by the best performing 12 percent of sources in the category. There is nothing in CAA section 112 that directs the agency to consider malfunctions in determining the level "achieved" by the best performing or best controlled sources when setting emission standards. Moreover, while the EPA accounts for variability in setting emissions standards consistent with the CAA section 112 case law, nothing in that case law requires the agency to consider malfunctions as part of that analysis. Section 112 of the CAA uses the concept of "best controlled" and "best performing" unit in defining the level of stringency that CAA section 112 performance standards must meet. Applying the concept of "best controlled" or "best performing" to a unit that is malfunctioning presents significant difficulties, as malfunctions are sudden and unexpected events.

Further, accounting for malfunctions would be difficult, if not impossible, given the myriad different types of malfunctions that can occur across all sources in the category and given the difficulties associated with predicting or accounting for the frequency, degree, and duration of various malfunctions that might occur. As such, the performance of units that are malfunctioning is not "reasonably" foreseeable. See, e.g., Sierra Club v. EPA, 167 F.3d 658, 662 (D.C. Cir. 1999) (the EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem. We generally defer to an

agency's decision to proceed on the basis of imperfect scientific information, rather than to "invest the resources to conduct the perfect study."). See also, Weyerhaeuser v. Costle, 590 F.2d 1011, 1058 (D.C. Cir. 1978) ("In the nature of things, no general limit, individual permit, or even any upset provision can anticipate all upset situations. After a certain point, the transgression of regulatory limits caused by 'uncontrollable acts of third parties,' such as strikes, sabotage, operator intoxication or insanity, and a variety of other eventualities, must be a matter for the administrative exercise of case-by-case enforcement discretion, not for specification in advance by regulation."). In addition, the goal of a best controlled or best performing source is to operate in such a way as to avoid malfunctions of the source and accounting for malfunctions could lead to standards that are significantly less stringent than levels that are achieved by a well-performing non-malfunctioning source. The EPA's approach to malfunctions is consistent with CAA section 112 and is a reasonable interpretation of the statute.

In the unlikely event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, the EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods,

including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. The EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, "sudden, infrequent, not reasonably preventable" and was not instead "caused in part by poor maintenance or careless operation." 40 CFR 63.2 (definition of malfunction).

Finally, the EPA recognizes that even equipment that is properly designed and maintained can sometimes fail and that such failure can sometimes cause a violation of the relevant emission standard. See, e.g., State Implementation Plans: Response to Petition for Rulemaking; Findings of Excess Emissions During Periods of Startup, Shutdown, and Malfunction; Proposed rule, 78 FR 12460 (Feb. 22, 2013); State Implementation Plans: Policy Regarding Excessive Emissions During Malfunctions, Startup, and Shutdown (Sept. 20, 1999); Policy on Excess Emissions During Startup, Shutdown, Maintenance, and Malfunctions (Feb. 15, 1983). The EPA is, therefore, proposing to add an affirmative defense to civil penalties for violations of emission standards that are caused by malfunctions. (See 40 CFR 63.1292 defining "affirmative defense" to mean, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and

objectively evaluated in a judicial or administrative proceeding). We also are proposing other regulatory provisions to specify the elements that are necessary to establish this affirmative defense; the source must prove by a preponderance of the evidence that it has met all of the elements set forth in § 63.1290(e) (See 40 CFR 22.24). The criteria are designed in part to ensure that the affirmative defense is available only where the event that causes a violation of the emission standard meets the narrow definition of malfunction in § 63.2 (sudden, infrequent, not reasonably preventable and not caused by poor maintenance and or careless operation). For example, to successfully assert the affirmative defense, the source must prove by a preponderance of the evidence that the violation "[w]as caused by a sudden, infrequent, and unavoidable failure of air pollution control, process equipment, or a process to operate in a normal or usual manner…." The criteria also are designed to ensure that steps are taken to correct the malfunction, to minimize emissions in accordance with section 63.1290(d) and to prevent future malfunctions. For example, the source must prove by a preponderance of the evidence that "[r]epairs were made as expeditiously as possible when a violation occurred…" and that "[a]ll possible steps were taken to minimize the impact of the violation on ambient air quality, the environment and human health…." In any judicial or

administrative proceeding, the Administrator may challenge the assertion of the affirmative defense and, if the respondent has not met its burden of proving all of the requirements in the affirmative defense, appropriate penalties may be assessed in accordance with CAA section 113 (see also 40 CFR 22.27).

The EPA included an affirmative defense in the proposed rule in an attempt to balance a tension, inherent in many types of air regulation, to ensure adequate compliance while simultaneously recognizing that despite the most diligent of efforts, emission standards may be violated under circumstances beyond the control of the source. The EPA must establish emission standards that "limit the quantity, rate, or concentration of emissions of air pollutants on a continuous basis." 42 U.S.C. 7602(k)(defining "emission limitation" and "emission standard"). See generally Sierra Club v. EPA, 551 F.3d 1019, 1021 (D.C. Cir. 2008) Thus, the EPA is required to ensure that emissions standards are continuous. The affirmative defense for malfunction events meets this requirement by ensuring that even where there is a malfunction, the emission standard is still enforceable through injunctive relief. The United States Court of Appeals for the Fifth Circuit recently upheld the EPA's view that an affirmative defense provision is consistent with CAA section 113(e). Luminant Generation Co. LLC v. United States EPA, 714 F.3d 841 (5th Cir. Mar. 25, 2013) (upholding the EPA's approval of

affirmative defense provisions in a CAA State Implementation Plan). While "continuous" standards, on the one hand, are required, there is also case law indicating that in many situations it is appropriate for the EPA to account for the practical realities of technology. For example, in Essex Chemical v. Ruckelshaus, 486 F.2d 427, 433 (D.C. Cir. 1973), the D.C. Circuit acknowledged that in setting standards under CAA section 111 "variant provisions" such as provisions allowing for upsets during startup, shutdown and equipment malfunction "appear necessary to preserve the reasonableness of the standards as a whole and that the record does not support the 'never to be exceeded' standard currently in force." See also, Portland Cement Association v. Ruckelshaus, 486 F.2d 375 (D.C. Cir. 1973). Though intervening case law, such as Sierra Club v. EPA and the CAA 1977 amendments, call into question the relevance of these cases today, they support the EPA's view that a system that incorporates some level of flexibility is reasonable. The affirmative defense simply provides for a defense to civil penalties for violations that are proven to be beyond the control of the source. By incorporating an affirmative defense, the EPA has formalized its approach to malfunctions. In a Clean Water Act setting, the Ninth Circuit required this type of formalized approach when regulating "upsets beyond the control of the permit holder." Marathon Oil

Co. v. EPA, 564 F.2d 1253, 1272-73 (9th Cir. 1977). See also, Mont. Sulphur & Chem. Co. v. EPA, 666 F.3d. 1174 (9th Cir. 2012) (rejecting industry argument that reliance on the affirmative defense was not adequate). But see, Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1057-58 (D.C. Cir. 1978) (holding that an informal approach is adequate). The affirmative defense provisions give the EPA the flexibility to both ensure that its emission standards are "continuous" as required by 42 U.S.C. 7602(k), and account for unplanned upsets and thus support the reasonableness of the standard as a whole. The EPA is proposing the affirmative defense applicable to malfunctions under the delegation of general regulatory authority set out in CAA section 301(a)(1), 42 U.S.C. 7601(a)(1), in order to balance this tension between provisions of the CAA and the practical reality, as case law recognizes, that technology sometimes fails. See generally Citizens to Save Spencer County v. U. S. Environmental Protection Agency, 600 F.2d 844, 873 (D.C. Cir. 1979) (using CAA section 301(a) authority to harmonize inconsistent guidelines related to the implementation of federal preconstruction review requirements).

b. Specific SSM-related proposed changes

To address the United States Court of Appeals for the District of Columbia Circuit vacatur of portions of the EPA's CAA section 112 regulations governing the emissions of HAP

during periods of SSM, we are revising and adding certain provisions to the FPUF Production rule. As described in detail below, we are revising the General Provisions (Table 2) to change several of the references related to requirements that apply during periods of SSM. We are also adding the following provisions to the FPUF Production rule: (1) the general duty to minimize emissions at all times, (2) the requirement for sources to comply with the emission limits in the rule at all times, and (3) malfunction recordkeeping and reporting requirements.

i. § 63.1290(d)(4) General Duty

We are proposing to revise the General Provisions table (Table 2) entry for § 63.6(e)(1)-(2) by adding rows specifically for §§ 63.6(e)(1)(i), 63.6(e)(1)(ii) and 63.6(e)(1)(iii) and to include a "no" in the second column for the § 63.6(e)(1)(i) entry. Section 63.6(e)(1)(i) describes the general duty to minimize emissions. Some of the language in that section is no longer necessary or appropriate in light of the elimination of the SSM exemption. We are proposing instead to add general duty regulatory text at § 63.1290(d)(4) that reflects the general duty to minimize emissions while eliminating the reference to periods covered by an SSM exemption. The current language in 40 CFR 63.6(e)(1)(i) characterizes what the general duty entails during periods of SSM. With the elimination of the SSM exemption, there is no need to differentiate between normal

operations, startup and shutdown, and malfunction events in describing the general duty. Therefore the language the EPA is proposing does not include that language from § 63.6(e)(1).

We are also proposing to include a "no" in the second column for the newly added § 63.6(e)(1)(ii) entry. Section 63.6(e)(1)(ii) imposes requirements that are not necessary with the elimination of the SSM exemption or are redundant of the general duty requirement being added at § 63.1290(d)(4).

ii. Compliance with standards

We are proposing to revise the General Provisions table (Table 2) entry for § 63.6(f) by adding a specific entry for § 63.6(f)(1) and including a "no" in the second column for this § 63.6(f)(1) entry. The current language of section 63.6, paragraph (f)(1) exempts sources from non-opacity standards during periods of SSM. As discussed above, the court in Sierra Club vacated the exemptions contained in this provision and held that the CAA requires that some CAA section 112 standard apply continuously. Consistent with Sierra Club, the EPA is proposing to revise standards in this rule to apply at all times.

iii. § 63.1307(h) Recordkeeping

We are proposing to revise the General Provisions table (Table 2) entry for § 63.10(a)-(b) by adding rows specifically for §§ 63.10(a), 63.10(b)(1), 63.10 (b)(2)(i), 63.10 (b)(2)(ii), 63.10 (b)(2)(iii), 63.10 (b)(2)(iv)-(xi), 63.10 (b)(2)(xii),

63.10 (b)(xiii), and 63.10 (b)(2)(xiv) in order to specify changes we are making to the applicability of several of the § 63.10(b)(2) paragraphs. In the entry for § 63.10(b)(2)(i), we are including a "no" in the second column. Section 63.10(b)(2)(i) describes the recordkeeping requirements during startup and shutdown. These recording provisions are no longer necessary because the EPA is proposing that recordkeeping and reporting applicable to normal operations will apply to startup and shutdown. In the absence of special provisions applicable to startup and shutdown, such as a startup and shutdown plan, there is no reason to retain additional recordkeeping for startup and shutdown periods.

In the entry for § 63.10(b)(2)(ii), we are including a "no" in the second column. Section 63.10(b)(2)(ii) describes the recordkeeping requirements during a malfunction. The EPA is proposing to add such requirements to 40 CFR 63.1307(h). The regulatory text we are proposing to add differs from the General Provisions it is replacing in that the General Provisions requires the creation and retention of a record of the occurrence and duration of each malfunction of process, air pollution control, and monitoring equipment. The EPA is proposing that this requirement apply to any failure to meet an applicable standard and is requiring that the source record the date, time, and duration of the failure rather than the

"occurrence." The EPA is also proposing to add to § 63.1307(h) a requirement that sources keep records that include a list of the affected sources or equipment and actions taken to minimize emissions, an estimate of the volume of each regulated pollutant emitted over the standard for which the source failed to meet a standard, and a description of the method used to estimate the emissions. Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing to require that sources keep records of this information to ensure that there is adequate information to allow the EPA to determine the severity of any failure to meet a standard, and to provide data that may document how the source met the general duty to minimize emissions when the source has failed to meet an applicable standard.

We are including a "no" in the second column in the entry for §§ 63.10(b)(2)(iv) and 63.10(b)(2)(v). When applicable, the provisions require sources to record actions taken during SSM events when actions were inconsistent with their SSM plan. These requirements are not appropriate because SSM plans are not (and were not) required by this rule, and the General Provisions applicability table referenced these sections in error.

iv. § 63.1306(f) Reporting

We are proposing to revise the General Provisions table (Table 2) entry for § 63.10(d)(4)-(5) by adding a specific entry for § 63.10(d)(5) and including a "no" in the second column for this § 63.10(d)(5) entry. Section 63.10(d)(5) describes the reporting requirements for startups, shutdowns, and malfunctions. To replace the General Provisions reporting requirement, the EPA is proposing to add reporting requirements to 40 CFR 63.1306(f). The replacement language differs from the General Provisions requirement in that it eliminates periodic SSM reports as a stand-alone report. We are proposing language that requires sources that fail to meet an applicable standard at any time to report the information concerning such events in the semi-annual report for slabstock affected sources and in the annual compliance certification for molded and rebond affected sources, which are already required under this rule. We are proposing that the malfunction report must contain the number, date, time, duration, and the cause of such events (including unknown cause, if applicable), a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process

parameters. The EPA is proposing this requirement to ensure that there is adequate information to determine compliance, to allow the EPA to determine the severity of the failure to meet an applicable standard, and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard.

The proposed rule eliminates the cross reference to section 63.10(d)(5)(i) that contains the description of the previously required SSM report format and submittal schedule from this section. These specifications are no longer necessary because the events will be reported in otherwise required reports with similar format and submittal requirements.

We note that reporting a failure to meet an applicable standard could include malfunction events for which a source may choose to submit documentation to support an assertion of affirmative defense. If a source provides all the material required in section 63.1290(e) to support an affirmative defense, the source need not submit the same information two times in the same report. While assertion of an affirmative defense is not mandatory and occurs only if a source chooses to take advantage of the affirmative defense, the affirmative defense also requires additional reporting that goes beyond these routine requirements related to a failure to meet an applicable standard for a reason other than a malfunction.

The proposed rule also eliminates the cross-reference to section 63.10(d)(5)(ii). Section 63.10(d)(5)(ii) describes an immediate report for startups, shutdown, and malfunctions when a source failed to meet an applicable standard but did not follow the SSM plan. These requirements are not appropriate because SSM plans are not required by this rule, and the General Provisions applicability table referenced this section in error.

2. Electronic Reporting of Performance Test Data

In this proposal, the EPA is describing a process to increase the ease and efficiency of performance test data submittal while improving data accessibility. Specifically, the EPA is proposing that owners and operators of FPUF production facilities submit electronic copies of required performance test reports by direct computer-to-computer electronic transfer using EPA-provided software. The direct computer-to-computer electronic transfer is accomplished through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). The CDX is EPA's portal for submittal of electronic data. The EPA-provided software is called the Electronic Reporting Tool (ERT) which is used to generate electronic reports of performance tests and evaluations. The ERT generates an electronic report package which will be submitted using the CEDRI. The submitted report package will be stored in the CDX archive (the official copy of

record) and EPA's public database called WebFIRE. All stakeholders will have access to all reports and data in WebFIRE and accessing these reports and data will be very straightforward and easy (see the WebFIRE Report Search and Retrieval link at http://cfpub.epa.gov/webfire/index.cfm?action=fire.searchERTSubmission). A description and instructions for use of the ERT can be found at http://www.epa.gov/ttn/chief/ert/index.html and CEDRI can be accessed through the CDX website (www.epa.gov/cdx). A description of the WebFIRE database is available at: http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main.

The proposal to submit performance test data electronically to the EPA applies only to those performance tests conducted using test methods that are supported by the ERT. The ERT supports most of the commonly used EPA reference methods. A listing of the pollutants and test methods supported by the ERT is available at: http://www.epa.gov/ttn/chief/ert/index.html.

We believe that industry would benefit from this proposed approach to electronic data submittal. Specifically, by using this approach, industry will save time in the performance test submittal process. Additionally, the standardized format that the ERT uses allows sources to create a more complete test report resulting in less time spent on data backfilling if a source failed to include all data elements required to be

submitted. Also through this proposal industry may only need to submit a report once to meet the requirements of the applicable subpart because stakeholders can readily access these reports from the WebFIRE database. This also benefits industry by cutting back on recordkeeping costs as the performance test reports that are submitted to the EPA using CEDRI are no longer required to be retained in hard copy, thereby, reducing staff time needed to coordinate these records.

Since the EPA will already have performance test data in hand, another benefit to industry is that fewer or less substantial data collection requests in conjunction with prospective required residual risk assessments or technology reviews will be needed. This would result in a decrease in staff time needed to respond to data collection requests.

State, local and tribal air pollution control agencies (S/L/Ts) may also benefit from having electronic versions of the reports they are now receiving. For example, S/L/Ts may be able to conduct a more streamlined and accurate review of electronic data submitted to them. For example, the ERT would allow for an electronic review process, rather than a manual data assessment, therefore, making review and evaluation of the source provided data and calculations easier and more efficient. In addition, the public stands to benefit from electronic reporting of emissions data because the electronic data will be easier for

the public to access. How the air emissions data are collected, accessed and reviewed will be more transparent for all stakeholders.

One major advantage of the proposed submittal of performance test data through the ERT is a standardized method to compile and store much of the documentation required to be reported by this proposed rule. The ERT clearly states what testing information would be required by the test method and has the ability to house additional data elements that might be required by a delegated authority.

In addition the EPA must have performance test data to conduct effective reviews of CAA sections 111, 112 and 129 standards, as well as for many other purposes including compliance determinations, emission factor development and annual emission rate determinations. In conducting these required reviews, the EPA has found it ineffective and time consuming, not only for us, but also for regulatory agencies and source owners and operators, to locate, collect and submit performance test data. In recent years, though, stack testing firms have typically collected performance test data in electronic format, making it possible to move to an electronic data submittal system that would increase the ease and efficiency of data submittal and improve data accessibility.

A common complaint heard from industry and regulators is that emission factors are outdated or not representative of a particular source category. With timely receipt and incorporation of data from most performance tests, the EPA would be able to ensure that emission factors, when updated, represent the most current range of operational practices. Another benefit of the proposed data submittal to WebFIRE electronically is that these data would greatly improve the overall quality of existing and new emissions factors by supplementing the pool of emissions test data for establishing emissions factors.

Finally, the general public would also benefit from electronic reporting of emissions data because the data would be available for viewing sooner and would be easier for the public to access. The EPA website that stores the submitted electronic data will be easily accessible to the public and will provide a user-friendly interface that any stakeholder could access.

In summary, in addition to supporting regulation development, control strategy development and other air pollution control activities, having an electronic database populated with performance test data would save industry, state, local, tribal agencies and the EPA significant time, money and effort, while also improving the quality of emission inventories and air quality regulations. Electronic databases will also benefit the general public by improving accessibility to

emissions data in an efficient and timely manner.

3. Clarification to Diisocyanate Storage Vessels Leak Detection Methods

The EPA is proposing to clarify the leak detection methods that may be used for diisocyanate storage vessels at slabstock foam production facilities during unloading events. The current requirements allow the vapor return line to be inspected for leaks during unloading events using visual, audible or any other detection method. Today, the EPA is proposing to clarify, that "any other detection method" must be an instrumental detection method.

4. Clarification to Diisocyanate Equipment Leak Delay of Repair Requirements for Valves and Connectors

The FPUF Production MACT standards generally require equipment leaks to be repaired within 15 days. However, there are also provisions that allow for a delay of repair. A delay of repair for pumps is allowed if repair requires replacing the existing seal design with a sealless pump, and the repair is completed as soon as practicable, but not later than 6 months after the leak is detected. For valves and connectors, a delay of repair is allowed if the owner or operator determines that diisocyanate emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from a delay of repair. However, for valves and

connectors, the current provisions do not state how long such a delay may last. To be consistent with the requirements for pumps, we are proposing to clarify that, for valves and connectors, the repair must be completed as soon as practicable, but not later than 6 months after the leak was detected.

E. What compliance dates are we proposing?

We are proposing that FPUF production facilities comply with the new proposed requirements prohibiting the use of HAP ABAs in this action no later than 90 days after the effective date of the final rule. This time period will be sufficient because all FPUF production facilities have already discontinued use of HAP ABAs.

We are proposing that facilities must comply with the SSM reporting and recordkeeping requirements and affirmative defense provisions, and requirements for electronic reporting on the effective date of the rule. We are proposing these compliance dates because the revised SSM requirements should be immediately implementable by the facilities upon the next occurrence of a malfunction, and the electronic reporting requirements should be immediately implementable by the facilities upon their next performance test.

V. Summary of Cost, Environmental and Economic Impacts

A. What are the affected sources?

We anticipate that 13 FPUF production facilities currently operating in the United States will be affected by these proposed amendments. We also expect no new facilities to be constructed in the foreseeable future. For more information about expected new facilities, see the document titled, Documentation of Communications with Industry and Regulatory Agency Contacts for the Flexible Polyurethane Foam Industry, located in the docket for this action.

B. What are the air quality impacts?

The EPA estimates that the proposed amendments to the FPUF Production MACT standards will not result in any directly quantifiable reduction of HAP emissions. Emissions of HAP from FPUF production sources have significantly declined since promulgation of the FPUF Production MACT standards because HAP ABAs are no longer used by FPUF production facilities. However, as discussed in section III.A.2, the MACT standards currently allow sources to use HAP ABAs. We estimate that the MACT-allowable emissions for the FPUF production source category are 735 tons of HAP ABAs. If the proposed revision prohibiting the use of HAP ABAs is finalized, the MACT-allowable emissions from ABA use would be zero. A detailed documentation of the analysis can be found in: MACT-Allowable Emissions for the Flexible Polyurethane Foam Production Source Category, which is available in the docket for this rulemaking.

C. What are the cost impacts?

Under the proposed amendments, FPUF production facilities are not expected to incur any costs. However, there may be small cost savings at some facilities due to reduced monitoring and recordkeeping costs. The memorandum, Technology Review and Cost Impacts for the Proposed Amendments to the Flexible Polyurethane Foam Production Source Category, includes a complete description of the cost estimate methods used for the analyses related to the proposed HAP and HAP-based ABA prohibition and is available in the docket.

D. What are the economic impacts?

Because no costs or a small cost savings are expected as a result of the proposed amendments, there will not be any significant impacts on affected firms and their consumers as a result of this proposal.

Because no small firms face significant control costs, there is no significant impact on small entities. Thus, this regulation is not expected to have a significant impact on a substantial number of small entities.

E. What are the benefits?

We do not anticipate any significant actual emission reductions of HAP as a result of these proposed amendments. However, if finalized, the proposed prohibition on HAP ABA use would eliminate the possibility that facilities might begin to

use HAP ABAs again. Under the existing rule, those possible emissions are estimated at 735 tons of HAP ABAs. If the prohibition is adopted, no emissions of HAP ABA would be allowed by the standard.

VI. Request for Comments

We solicit comments on all aspects of this proposed action. In addition to general comments on this proposed action, we are also interested in additional data that may improve the risk assessments and other analyses. We are specifically interested in receiving any improvements to the data used in the site-specific emissions profiles used for risk modeling. Such data should include supporting documentation in sufficient detail to allow characterization of the quality and representativeness of the data or information. Section VII of this preamble provides more information on submitting data.

VII. Submitting Data Corrections

The site-specific emissions profiles used in the source category risk and demographic analyses and instructions are available on the RTR web page at: http://www.epa.gov/ttn/atw/rrisk/rtrpg.html. The data files include detailed information for each HAP emissions release point for the facilities in the source category.

If you believe that the data are not representative or are inaccurate, please identify the data in question, provide your

reason for concern and provide any "improved" data that you have, if available. When you submit data, we request that you provide documentation of the basis for the revised values to support your suggested changes. To submit comments on the data downloaded from the RTR page, complete the following steps:

1. Within this downloaded file, enter suggested revisions to the data fields appropriate for that information.

2. Fill in the commenter information fields for each suggested revision (i.e., commenter name, commenter organization, commenter email address, commenter phone number and revision comments).

3. Gather documentation for any suggested emissions revisions (e.g., performance test reports, material balance calculations, etc.).

4. Send the entire downloaded file with suggested revisions in Microsoft® Access format and all accompanying documentation to Docket ID Number EPA-HQ-OAR-2012-0510 (through one of the methods described in the ADDRESSES section of this preamble).

5. If you are providing comments on a single facility or multiple facilities, you need only submit one file for all facilities. The file should contain all suggested changes for all sources at that facility. We request that all data revision comments be submitted in the form of updated Microsoft® Excel

files that are generated by the Microsoft® Access file. These files are provided on the RTR web page at: http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.

VIII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a "significant regulatory action" under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011).

B. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501, et seq. The Information Collection Request (ICR) document prepared by the EPA has been assigned EPA ICR number 1783.07.

The information requirements are based on notification, recordkeeping, and reporting requirements in the NESHAP General Provisions (40 CFR part 63, subpart A), which are mandatory for all operators subject to national emissions standards. These recordkeeping and reporting requirements are specifically authorized by CAA section 114 (42 U.S.C. 7414). All information submitted to the EPA pursuant to the recordkeeping and reporting

requirements for which a claim of confidentiality is made is safeguarded according to agency policies set forth in 40 CFR part 2, subpart B.

For this proposed rule, the EPA is adding affirmative defense to the estimate of burden in the ICR. To provide the public with an estimate of the relative magnitude of the burden associated with an assertion of the affirmative defense position adopted by a source, the EPA has provided administrative adjustments to this ICR to show what the notification, recordkeeping and reporting requirements associated with the assertion of the affirmative defense might entail. The EPA's estimate for the required notification, reports and records for any individual incident, including the root cause analysis, totals $2,188 for the FPUF production source category, and is based on the time and effort required of a source to review relevant data, interview plant employees, and document the events surrounding a malfunction that has caused an exceedance of an emissions limit. The estimate also includes time to produce and retain the record and reports for submission to the EPA. The EPA provides this illustrative estimate of this burden because these costs are only incurred if there has been a violation and a source chooses to take advantage of the affirmative defense.

Given the variety of circumstances under which malfunctions could occur, as well as differences among sources' operation and maintenance practices, we cannot reliably predict the severity and frequency of malfunction-related excess emissions events for a particular source. It is important to note that the EPA has no basis currently for estimating the number of malfunctions that would qualify for an affirmative defense. Current historical records would be an inappropriate basis, as source owners or operators previously operated their facilities in recognition that they were exempt from the requirement to comply with emissions standards during malfunctions. Of the number of excess emissions events reported by source operators, only a small number would be expected to result from a malfunction (based on the definition above), and only a subset of excess emissions caused by malfunctions would result in the source choosing to assert the affirmative defense. Thus, we believe the number of instances in which source operators might be expected to avail themselves of the affirmative defense will be extremely small. With respect to the FPUF production source category, we estimate the annual recordkeeping and reporting burden after the effective date of the proposed rule for affirmative defense to be 30 hours at a cost of $2,188. We expect to gather information on such events in the future and will revise this estimate as better information becomes available.

We estimate approximately 13 regulated entities are currently subject to 40 CFR part 63, subpart III, and will be subject to all proposed standards, a decrease of 119 regulated entities from our estimate for the previous ICR (EPA ICR Number 1783.05, OMB Control Number 2060-0357) for the FPUF production source category. The annual monitoring, reporting, and recordkeeping burden for this collection (averaged over the first 3 years after the effective date of the standards) for subpart III (FPUF production), including today's proposed amendments, is estimated to be $90,104 per year. This includes 1,030 labor hours per year at a total labor cost of $90,104 per year, and total non-labor capital and operation and maintenance costs of $0 per year. This represents a decrease of $760,000 and 8,000 labor hours from the previous ICR, due primarily to the reduction in the estimated number of regulated entities. Our estimate of the burden for each regulated entity has increased by $485 and 11 labor hours from the previous ICR estimate. This increase in burden for each regulated entity is not due to the proposed amendments, but is due to a correction of an error in the total number of reports required per year for slabstock foam producers. This was previously estimated to be two semi-annual reports per year, but this estimate did not account for the annual compliance report.

The total burden for the federal government (averaged over the first 3 years after the effective date of the standard) is estimated to be 67 hours per year at a total labor cost of $3,607 per year. Burden is defined at 5 CFR 1320.3(b).
An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9.

To comment on the agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden, the EPA has established a public docket for this rule, which includes this ICR, under Docket ID number EPA-HQ-OAR-2012-0510. Submit any comments related to the ICR to the EPA and OMB. See the ADDRESSES section at the beginning of this notice for where to submit comments to the EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, DC 20503, Attention: Desk Office for EPA. Because OMB is required to make a decision concerning the ICR between 30 and 60 days after [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER], a comment to OMB is best assured of having its full effect if OMB receives it by [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this proposed rule on small entities, small entity is defined as: (1) a small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. The small entities directly regulated by this proposed

rule are small businesses. We have determined that three facilities, or 23 percent of the 13 affected facilities, are small entities. Total annualized costs for the proposed rule are estimated to be $0, and no small entities are projected to incur costs. Because HAP ABAs are no longer used by FPUF production facilities, there are no impacts on any entities subject to this rulemaking.

We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

This action contains no federal mandate under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531-1538 for state, local, or tribal governments or the private sector. This action imposes no enforceable duties on any state, local or tribal governments or the private sector. Therefore, this action is not subject to the requirements of sections 202 or 205 of the UMRA.

This action is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments because it contains no requirements that apply to such governments nor does it impose obligations upon them.

E. Executive Order 13132: Federalism

This proposed action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This action will not impose substantial direct compliance costs on state or local governments, nor will it preempt state law, and none of the facilities subject to this action are owned or operated by state governments. Thus, Executive Order 13132 does not apply to this action.

In the spirit of Executive Order 13132, and consistent with the EPA policy to promote communications between the EPA and state and local governments, the EPA specifically solicits comment on this action from state and local officials.

F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). There are no FPUF production facilities that are within 3 miles of tribal lands. Thus, Executive Order 13175 does not apply to this action.

The EPA specifically solicits additional comment on this proposed action from tribal officials.

G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

This action is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because it is not economically significant as defined in Executive Order 12866, and because the agency does not believe the environmental health risks or safety risks addressed by this action present a disproportionate risk to children. This proposed action's health and risk assessments are contained in section IV of this preamble.

The public is invited to submit comments or identify peer-reviewed studies and data that assess effects of early life exposure to HAP emitted by FPUF production facilities.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not a "significant energy action" as defined in Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. We have concluded that this rule is not likely to have any adverse energy effects because the proposed requirements of this rule will not cause the additional use of energy by any facilities in the source category nor is there any expected impact on sources in the energy supply, distribution, or use sectors related to the proposed provisions of this rule.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law No. 104-113 (15 U.S.C. 272 note), directs the EPA to use voluntary consensus standards (VCS) in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. VCS are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs the EPA to provide Congress, through OMB, explanations when the agency decides not to use available and applicable VCS.

The proposed rulemaking involves technical standards. Therefore, the agency conducted a search to identify potentially applicable voluntary consensus standards. However, we identified no such standards, and none were brought to our attention in comments. Therefore, the EPA has decided to use EPA Method 25A, "Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer," 40 CFR part 60, Appendix A, to measure organic compound concentrations.

EPA welcomes comments on this aspect of the proposed rulemaking and, specifically, invites the public to identify potentially-applicable voluntary consensus standards and to explain why such standards should be used in this regulation.

J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies and activities on minority populations and low-income populations in the United States.

The EPA has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations, because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population.

To gain a better understanding of the source category and near source populations, the EPA conducted a proximity analysis on FPUF production facilities to identify any overrepresentation of minority, low income or indigenous populations. This analysis only gives some indication of the prevalence of sub-populations

that may be exposed to air pollution from the sources; it does not identify the demographic characteristics of the most highly affected individuals or communities, nor does it quantify the level of risk faced by those individuals or communities. More information on the source category's risk can be found in section IV of this preamble.

The proximity analysis reveals that most demographic categories are below or within 20 percent of their corresponding national averages. The one exception is the African American population. The ratio of African Americans living within 3 miles of any source affected by this rule is 48 percent higher than the national average (19 percent versus 13 percent); however, as noted previously, risks from this source category were found to be acceptable for all populations. Additionally, the proposed changes to the standard increase the level of environmental protection for all affected populations by ensuring no future emissions increases from the source category. The proximity analysis results and the details concerning their development are presented in the August 2012 memorandum titled, Environmental Justice Review: Flexible Polyurethane Foam Production, a copy of which is available in the docket for this action (EPA-HQ-OAR-2012-0510).

List of Subjects in 40 CFR Part 63

Environmental protection, Air pollution control, Hazardous substances, Reporting and recordkeeping requirements.

Dated: September 26, 2013.

Gina McCarthy,
Administrator.

For the reasons stated in the preamble, the Environmental Protection agency (EPA) proposes to amend title 40, chapter I, of the Code of Federal Regulations (CFR) as follows:

PART 63—[AMENDED]

1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401 et seq.

Subpart III — NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR FLEXIBLE POLYURETHANE FOAM PRODUCTION

2. Section 63.1290 is amended by:

a. Revising paragraph (c); and

b. Adding paragraphs (d) and (e).

The additions and revisions read as follows:

§63.1290 Applicability.

* * * * *

(c) A process meeting one of the following criteria listed in paragraphs (c)(1) and (2) of this section shall not be subject to the provisions of this subpart:

(1) A process exclusively dedicated to the fabrication of flexible polyurethane foam; or

(2) A research and development process.

(d) Applicability of this subpart. (1) The emission limitations set forth in this subpart and the emission limitations referred to in this subpart shall apply at all times

except during periods of non-operation of the affected source (or specific portion thereof) resulting in cessation of the emissions to which this subpart applies.

(2) Equipment leak requirements of §63.1294 shall apply at all times except during periods of non-operation of the affected source (or specific portion thereof) in which the lines are drained and depressurized resulting in cessation of the emissions to which the equipment leak requirements apply.

(3) The owner or operator shall not shut down items of equipment that are required or utilized for compliance with this subpart during times when emissions are being routed to such items of equipment if the shutdown would contravene requirements of this subpart applicable to such items of equipment.

(4) General duty. At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator, which may include, but is not limited to,

monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

(e) Affirmative defense for violation of emission standards during malfunction. In response to an action to enforce the standards set forth in paragraphs §§ 63.1293, 63.1294, 63.1297, 63.1298, 63.1300, and 63.1301, the owner or operator may assert an affirmative defense to a claim for civil penalties for violations of such standards that are caused by malfunction, as defined at 40 CFR 63.2. Appropriate penalties may be assessed if the owner or operator fails to meet their burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(1) Assertion of affirmative defense. To establish the affirmative defense in any action to enforce such a standard, the owner or operator must timely meet the reporting requirements in paragraph (e)(2) of this section, and must prove by a preponderance of evidence that:

(i) The violation:

(A) Was caused by a sudden, infrequent, and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner; and

(B) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(C) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and

(D) Was not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(ii) Repairs were made as expeditiously as possible when a violation occurred; and

(iii) The frequency, amount, and duration of the violation (including any bypass) were minimized to the maximum extent practicable; and

(iv) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

(v) All possible steps were taken to minimize the impact of the violation on ambient air quality, the environment, and human health; and

(vi) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and

(vii) All of the actions in response to the violation were documented by properly signed, contemporaneous operating logs; and

(viii) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions; and

(ix) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of any emissions that were the result of the malfunction.

(2) Report. The owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator with all necessary supporting documentation, that explains how it has met the requirements set forth in paragraph (e)(1) of this section. This affirmative defense report shall be included in the first periodic compliance, deviation report or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance, deviation report or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second compliance, deviation report or excess emission report due after

the initial occurrence of the violation of the relevant standard.

3. Section 63.1291 is amended by revising paragraph (a) to read as follows:

§ 63.1291 Compliance schedule.

(a) Existing affected sources shall be in compliance with all provisions of this subpart no later than October 8, 2001, with the exception of § 63.1297. Affected sources subject to the requirements of § 63.1297 shall be in compliance with the requirements of this section on or before **[DATE 90 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER].**

* * * * *

4. Section 63.1292 is amended by:

a. Adding a definition for "affirmative defense" in alphabetical order;

b. Revising the definitions for "HAP-based," "Reconstructed source," "Storage vessel" and "Transfer pump"; and

c. Removing the definitions for "High-pressure mixhead," "Indentation Force Deflection (IFD)," "In HAP ABA service," "Recovery device," "Run of foam," and "Transfer vehicle".

The additions and revisions read as follows:

§63.1292 Definitions.

* * * * *

Affirmative defense means, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

* * * * *

HAP-based means to contain 5 percent (by weight) or more of HAP. This applies to equipment cleaners, mixhead flushes, mold release agents and ABA.

* * * * *

Reconstructed source means an affected source undergoing reconstruction, as defined in subpart A of this part. For the purposes of this subpart, process modifications made to stop using HAP ABA or HAP-based ABA to meet the requirements of this subpart shall not be counted in determining whether or not a change or replacement meets the definition of reconstruction.

* * * * *

Storage vessel means a tank or other vessel that is used to store diisocyanates for use in the production of flexible polyurethane foam. Storage vessels do not include vessels with capacities smaller than 38 cubic meters (or 10,000 gallons).

Transfer pump means all pumps used to transport diisocyanates that are not metering pumps.

5. Section 63.1293 is revised to read as follows:

§63.1293 Standards for slabstock flexible polyurethane foam production.

Each owner or operator of a new or existing slabstock affected source shall comply with §§63.1294, 63.1297 and 63.1298.

6. Section 63.1294 is amended by revising paragraphs (a)(1)(i), (c) and (d)(2)(ii), and by adding paragraph (d)(2)(iii) to read as follows:

§63.1294 Standards for slabstock flexible polyurethane foam production—diisocyanate emissions.

(a) * * *

(1) * * *

(i) During each unloading event, the vapor return line shall be inspected for leaks by visual, audible, or an instrumental detection method.

* * * * *

(c) Other components in diisocyanate service. If evidence of a leak is found by visual, audible, or an instrumental detection method, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in paragraph (d) of this section. The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(d) * * *

(2) * * *

(ii) The purged material is collected and destroyed or recovered in a control device when repair procedures are effected, and

(iii) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.

* * * * *

§63.1295 [Removed and Reserved]

7. Remove and reserve §63.1295.

§63.1296 [Removed and Reserved]

8. Remove and reserve §63.1296.

9. Revise § 63.1297 to read as follows:

§63.1297 Standards for slabstock flexible polyurethane foam production - HAP ABA.

Each owner or operator of a new or existing slabstock affected source shall not use HAP or a HAP-based material as an ABA.

10. Revise § 63.1298 to read as follows:

§63.1298 Standards for slabstock flexible polyurethane foam production - HAP emissions from equipment cleaning.

Each owner or operator of a new or existing slabstock affected source shall not use HAP or a HAP-based material as an equipment cleaner.

§63.1299 [Removed and Reserved]

11. Remove and reserve §63.1299.

12. Revise § 63.1302 to read as follows:

§63.1302 Applicability of subpart A requirements.

The owner or operator of an affected source shall comply with the applicable requirements of subpart A of this part, as specified in Table 1 of this subpart.

13. Section 63.1303 is amended by:

a. Revising paragraph (a) introductory text;

b. Removing paragraphs (a)(3) and (a)(4);

c. Revising paragraph (b); and

d. Removing paragraphs (c), (d) and (e).

The revisions read as follows:

§63.1303 Monitoring requirements.

* * * * *

(a) Monitoring requirements for storage vessel carbon adsorption systems. Each owner or operator using a carbon adsorption system to meet the requirements of §63.1294(a) shall monitor the concentration level of the HAP or the organic compounds in the exhaust vent stream (or outlet stream exhaust) from the carbon adsorption system at the frequency specified in paragraphs (a)(1) or (2) of this section.

* * * * *

(b) Each owner or operator using a carbon adsorption system to meet the requirements of §63.1294(a) shall monitor the

concentration level of total organic compounds in the exhaust vent stream (or outlet stream exhaust) from the carbon adsorption system using 40 CFR part 60, Appendix A, Method 25A, reported as propane. The measurement shall be conducted over at least one 5-minute interval during which the storage vessel is being filled.

§63.1304 [Removed and Reserved]

14. Remove and reserve §63.1304.

15. Section 63.1306 is amended by:

a. Removing paragraph (c);

b. Redesigating paragraphs (d) and (e) as paragraphs (c) and (d);

c. Revising newly redesignated paragraphs (c) introductory text and (c)(3);

d. Revising newly redesignated paragraph (d);

e. Revising paragraph (f);

f. Redesignating paragraph (g) as paragraph (e);

g. Revising newly redesignated paragraphs (e)(1) and (2); and

h. Adding a new paragraph (g).

The addition and revisions read as follows:

§63.1306 Reporting requirements.

* * * * *

(c) Notification of compliance status. Each affected source shall submit a notification of compliance status report no later than 180 days after the compliance date. For slabstock affected sources, this report shall contain the information listed in paragraphs (c)(1) through (3) of this section, as applicable. This report shall contain the information listed in paragraph (c)(4) of this section for molded foam processes and in paragraph (c)(5) of this section for rebond foam processes.

* * * * *

(3) A statement that the slabstock foam affected source is in compliance with §§ 63.1297 and 63.1298, or a statement that slabstock foam processes at an affected source are in compliance with §§ 63.1297 and 63.1298.

* * * * *

(d) Semiannual reports. Each slabstock affected source shall submit a report containing the information specified in paragraphs (d)(1) through (3) of this section semiannually no later than 60 days after the end of each 180 day period. The first report shall be submitted no later than 240 days after the date that the Notification of Compliance Status is due and shall cover the 6-month period beginning on the date that the Notification of Compliance Status Report is due.

(1) For sources complying with the storage vessel provisions of § 63.1294(a) using a carbon adsorption system,

unloading events that occurred after breakthrough was detected and before the carbon was replaced.

(2) Any equipment leaks that were not repaired in accordance with §§ 63.1294(b)(2)(iii) and 63.1294(c).

(3) Any leaks in vapor return lines that were not repaired in accordance with § 63.1294(a)(1)(ii).

(e) * * *

(1) The compliance certification shall be based on information consistent with that contained in § 63.1308, as applicable.

(2) A compliance certification required pursuant to a state or local operating permit program may be used to satisfy the requirements of this section, provided that the compliance certification is based on information consistent with that contained in § 63.1308, and provided that the Administrator has approved the state or local operating permit program under part 70 of this chapter.

* * * * *

(f) Malfunction reports. If a source fails to meet an applicable standard, slabstock affected sources must report such events in the next semiannual report and molded and rebond affected sources must report such events in the next annual compliance certification. Report the number of failures to meet an applicable standard. For each instance, report the date, time

and duration of each failure. For each failure, the report must include a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

(g) Within 60 days after the date of completing each performance test (as defined in §63.2), you must submit the results of the performance tests required by this subpart according to the methods specified in paragraphs (g)(1) or (g)(2) of this section.

(1) For data collected using test methods supported by the EPA-provided software, the owner or operator shall submit the results of the performance test to the EPA by direct computer-to-computer electronic transfer via EPA-provided software, unless otherwise approved by the Administrator. Owners or operators, who claim that some of the information being submitted for performance tests is confidential business information (CBI), must submit a complete file using EPA-provided software that includes information claimed to be CBI on a compact disk, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be

submitted to the EPA by direct computer-to-computer electronic transfer via EPA-provided software.

(2) For any performance test conducted using test methods that are not compatible with the EPA-provided software, the owner or operator shall submit the results of the performance test to the Administrator at the appropriate address listed in §63.13.

16. Section 63.1307 is amended by:

a. Removing paragraph (a)(2) and redesignating paragraphs (a)(3) and (a)(4) as paragraphs (a)(2) and (a)(3);

b. Revising the newly redesignated paragraphs (a)(2) introductory text, (a)(2)(ii), and (a)(3) introductory text;

c. Revising paragraph (b)(1);

d. Revising paragraphs (b)(3) introductory text, (b)(3)(i) introductory text and (b)(3)(i)(B);

e. Removing paragraph (b)(3)(i)(C);

f. Revising paragraphs (b)(3)(ii) introductory text and (b)(3)(ii)(A);

g. Removing paragraph (b)(3)(ii)(D);

h. Redesignating paragraphs (b)(3)(ii)(E) through (b)(3)(ii)(H) as (b)(3)(ii)(D) through (b)(3)(ii)(G);

i. Revising paragraph (c);

j. Removing paragraph (d);

k. Redesignating paragraphs (e) through (h) as (d) through (g);

l. Revising newly redesignated paragraph (e); and

m. Adding paragraph (h).

The additions and revisions read as follows:

§63.1307 Recordkeeping requirements.

* * * * *

(a) * * *

(2) For storage vessels complying through the use of a carbon adsorption system, paragraphs (a)(2)(i) or (ii), and paragraph (a)(2)(iii) of this section.

* * * * *

(ii) For affected sources monitoring at an interval no greater than 20 percent of the carbon replacement interval, in accordance with § 63.1303(a)(2), the records listed in paragraphs (a)(2)(ii)(A) and (B) of this section.

* * * * *

(3) For storage vessels complying through the use of a vapor return line, paragraphs (a)(3)(i) through (iii) of this section.

* * * * *

(b) * * * (1) A list of components in diisocyanate service.

* * * * *

(3) When a leak is detected as specified in §§63.1294(b)(2)(ii) and 63.1294(c), the requirements listed in paragraphs (b)(3)(i) and (ii) of this section apply:

(i) Leaking equipment shall be identified in accordance with the requirements in paragraphs (b)(3)(i)(A) and (B) of this section.

* * * * *

(B) The identification on equipment may be removed after it has been repaired.

(ii) The information in paragraphs (b)(2)(ii)(A) through (G) shall be recorded for leaking components.

(A) The operator identification number and the equipment identification number.

* * * * *

(c) The owner or operator of an affected source subject to §63.1297 shall maintain a product data sheet for each ABA used which includes the HAP content, in kg of HAP/kg solids (lb HAP/lb solids).

* * * * *

(e) The owner or operator of an affected source following the compliance methods in §63.1308(b)(1) shall maintain records of each use of a vapor return line during unloading, of any leaks detected during unloading, and of repairs of leaks detected during unloading.

* * * * *

(h) Malfunction records. Records shall be kept as specified in paragraphs (h)(1) through (3) of this section for affected sources. Records are not required for emission points that do not require control under this subpart.

(1) In the event that an affected unit fails to meet an applicable standard, record the number of failures. For each failure, record the date, time and duration of the failure.

(2) For each failure to meet an applicable standard, record and retain a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(3) Record actions taken to minimize emissions in accordance with §63.1290(d) and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

17. Section 63.1308 is amended by:

a. Revising paragraph (a) introductory text;

b. Revising paragraphs (b)(3), (b)(6), and (c);

c. Removing paragraph (d); and

d. Redesignating paragraph (e) as (d).

The revisions read as follows:

§63.1308 Compliance demonstrations.

(a) For each affected source, compliance with the requirements described in Tables 2 and 3 of this subpart shall mean compliance with the requirements contained in §§63.1293 through 63.1301, absent any credible evidence to the contrary.

* * * * *

(b) * * *

(3) For each affected source complying with §63.1294(a) in accordance with §63.1294(a)(2) through the alternative monitoring procedures in §63.1303(a)(2), each unloading event that the diisocyanate storage vessel is not equipped with a carbon adsorption system, each time that the carbon adsorption system is not monitored for breakthrough in accordance with §63.1303(b)(1) or (2) at the interval established in the design analysis, and each unloading event that occurs when the carbon is not replaced after an indication of breakthrough;

* * * * *

(6) For each affected source complying with §63.1294(c), each calendar day after 5 calendar days after detection of a leak that a first attempt at repair has not been made, and the earlier of each calendar day after 15 calendar days after detection of a leak that a leak is not repaired, or if a leak is not repaired as soon as practicable, each subsequent calendar day (with the exception of situations meeting the criteria of §63.1294(d)).

(c) Slabstock affected sources. For slabstock foam affected sources, failure to meet the requirements contained in §§63.1297 and 63.1298, respectively, shall be considered a violation of this subpart. Violation of each item listed in the following paragraphs shall be considered a separate violation.

(1) For each slabstock foam affected source subject to the provisions in §63.1297, each calendar day that a HAP ABA or HAP-based material is used as an ABA;

(2) For each slabstock foam affected source subject to the provisions of §63.1298, each calendar day that a HAP-based material is used as an equipment cleaner.

* * * * *

18. Section 63.1309 is amended by removing paragraph (b)(4) and redesignating paragraph (b)(5) as (b)(4).

19. Remove Table 1 to Subpart III of part 63.

20. Redesignate Table 2 to Subpart III of Part 63 as Table 1 to Subpart III of Part 63 and amend newly redesignated Table 1 by:

a. Revising the heading of newly redesignated Table 1;

b. Removing entry §63.6(e)(1)-(2);

c. Adding entries §63.6(e)(1)(i), §63.6(e)(1)(ii) and §63.6(e)(1)(iii);

d. Removing entry §63.6(e)(3);

e. Adding entry §63.6(e)(2)-(3):

f. Removing entry §63.6(f)-(g);

g. Adding entries §63.6(f)(1), §63.6(f)(2)-(3), and §63.6(g);

h. Removing entry §63.10(a)-(b);

i. Adding entries §63.10(a), §63.10(b)(1), §63.10(b)(2)(i), §63.10(b)(2)(ii); §63.10(b)(2)(iii); §63.10(b)(2)(iv)-(xi); §63.10(b)(2)(xii); §63.10(b)(2)(xiii), §63.10(b)(2)(xiv); and §63.10(b)(3);

j. Removing entry §63.10(d)(4)-(5); and

k. Adding entries §63.10(d)(4) and §63.10(d)(5).

The additions and revisions read as follows:

Table 1 to Subpart III of Part 63—Applicability of General Provisions (40 CFR Part 63, Subpart A) to Subpart III

Subpart A reference	**Applies to subpart III**	**Comment**
* * * * * * *		
§63.6(e)(1)(i)	NO	See §63.1290(d)(4) for general duty requirement.
§63.6(e)(1)(ii)	NO	
§63.6(e)(1)(iii)	YES	
§63.6(e)(2)-(3)	NO	
§63.6(f)(1)	NO	
§63.6(f)(2)-(3)	YES	
§63.6(g)	YES	
* * * * * * *		
§63.10(a)	YES	
§63.10(b)(1)	YES	

§63.10(b)(2)(i)	NO	
§63.10(b)(2)(ii)	NO	See §63.1307(h) for recordkeeping of (1) date, time and duration; (2) listing of affected source or equipment and an estimate of the volume of each regulated pollutant emitted over the standard; and (3) actions to minimize emissions and any actions taken at the discretion of the owner or operator to prevent recurrence of the failure to meet an applicable requirement.
§63.10(b)(2)(iii)	YES	
§63.10(b)(2)(iv)-(xi)	NO	
§63.10(b)(2)(xii)	YES	
§63.10(b)(2)(xiii)	NO	
§63.10(b)(2)(xiv)	YES	
§63.10(b)(3)	YES	
* * * * * * *		
§63.10(d)(4)	YES	
§63.10(d)(5)	NO	See §63.1306(f) for malfunction reporting requirements.
* * * * * * *		

21. Redesignate Table 3 to Subpart III of Part 63 as Table 2 to Subpart III of Part 63 and amend newly redesignated Table 2 by:

a. Revising the heading for newly redesignated Table 2;

b. Removing entries for HAP ABA storage vessels §63.1295, HAP ABA pumps §63.1296(a), HAP ABA valves §63.1296(b), HAP ABA connectors §63.1296(c), Pressure relief devices §63.1296(d),

Open-ended valves or lines §63.1296(e), and Production line §63.1297; and

c. Adding an entry for ABAs §63.1297.

The revisions and addition read as follows:

Table 2 to Subpart III of Part 63—Compliance Requirements for Slabstock Foam Production Affected Sources

Emission Point	Emission point compliance option	Emission, work practice, and equipment standards	Monitoring	Recordkeeping	Reporting
*	*	*	*	*	*
ABAs §63.1297	N/A	§63.1297		§63.1307(e)	

22. Remove Table 4 to Subpart III of Part 63.

23. Redesignate Table 5 to Subpart III of Part 63 as Table 3 to Subpart III of Part 63 and amend newly redesignated Table 3 by revising the heading to read as follows:

Table 3 to Subpart III of Part 63—Compliance Requirements for Molded and Rebond Foam Production Affected Sources

* * * * *

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